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ABSTRACT

How to decrease school operating costs without hurting the quality of education is the subject of this report, which contains suggestions gleaned from school districts all over the country in a survey conducted by the National School Public Relations Association. The most important attitude that all members of the school community can hold is an attitude supporting conservation in all areas, including, of course, conservation of energy. Chapters of this report cover, in addition to energy conservation, staff utilization, facilities use, building maintenance, school organization, cooperative purchasing, student transportation, food service, and vandalism. The opportunities for conservation of school resources are present in these days of declining enrollment, but schools must plan carefully to realize savings. (Author/DS)

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SPECIAL REPORT

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CUTTING COSTS:
Successful Ways To Reduce School Expenditures

CURRENT TRENDS
in School Policies & Programs

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Acknowledgement

Cutting Costs is one of a series of Education U.S.A. Special Reports on current trends in school policies and programs. The purpose of the series is to provide school practitioners at all levels, and others concerned with education, with the most up-to-date information on problems which are at the core of today's constantly changing education scene.

Cutting Costs was written by Peggy Gonder of Denver, Colo. It was developed and produced by the Education U.S.A. Special Reports staff: Anne C. Lewis, Executive Editor, Cynthia C. Menand, Director of Editorial Services and John H. Wherry, Editorial Director. Special research, editorial and production services were provided by Nancy Colalillo, Janet Eaffy, Debbie Lucckese and Jenny McAllister.

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Overview

The cost of operating public schools in the United States nearly tripled in the decade from 1960 to 1970 – from less than $14 billion to more than $38 billion a year. In the current decade, the rate of increase has accelerated. According to the Federal Energy Administration, public school expenditures on energy increased 48% between 1974 and 1976. Market Data Retrieval, in its second annual national comparison of local school costs, found that salaries for non-classroom teaching personnel increased 21.6% and teacher salaries increased 7.4% in one year. Overall, schools were spending an average of $105 more per student than the year before, with all but $15 of the increase paying for inflation.

Coupled with staggering inflation, many districts have had to cope with declining enrollments. Because schools usually receive funding based on average daily attendance, revenue has been decreasing at the same time that costs are increasing. Intensifying the problem further, voters – disenchanted with all governmental institutions – have been defeating school mill levies by the score. Overcrowded schools often turn to double sessions and temporary classrooms after a construction bond issue defeat. And some districts whose operating budgets are disapproved by voters are being forced to close schools in the middle of the year.

The paradox of the current educational scene is that family mobility is causing problems due to overcrowding in some districts and declining enrollments in others. Whether overstuffed or undernourished, however, school systems face a common problem – stretching fewer new dollars to cover the increasing costs of present programs.

In typical American fashion, many of the nation's schools are proving equal to the challenge. Austerity is causing school officials to rethink procedures, resulting in greater efficiency. And dwindling financial resources have turned the spotlight on American waste of other resources, especially those used to create energy. The shift has put greater emphasis on recycling, from the rejuvenation of old but usable school buildings to the preservation of throw-away curriculum materials. In short, hard times are providing educational institutions with an opportunity to discard their old wasteful patterns as an example in educating a new generation of consumers. The word is out: tight budgets are not a passing phase; fiscal accountability is here to stay.

Because money-saving techniques in one community can usually be adapted in others, *Education U.S.A.* surveyed 1,000 of its readers to discover the solutions that have worked successfully in their school districts. In addition to the survey responses, a review of hundreds of other resources was made to compile a handbook of cost-saving ideas.

The Deer Park (Tex.) Independent School District uses the philosophy of employe participation in the preparation of its annual budget. All employes are asked to suggest ways to reduce costs. Priorities of needs and projections of anticipated costs are reviewed at every stage of budget preparation. The procedure results "in a more realistic budget and lower expenditures than when fewer persons are involved in budgeting," the district writes.

The Dallas Independent School District uses a slightly different twist by involving all department heads in zero-based budgeting. According to *Planning and Changing* magazine, each principal and department head must start from scratch with the new budget and justify expenditures for every program. "The result is better thought-out programs, better informed management from bottom to top and improved allocations of resources," say the district's administrators. The budget includes a "decision package" for each program, which describes the objectives of the activity, the consequences of not having the particular program, ways to measure the program's effectiveness, alternatives

CUTTING COSTS

CURRENT TRENDS in School Policies & Programs

When large-scale budget cuts are necessary, some districts respond with an across-the-board reduction and others cut certain areas while leaving others virtually untouched. Reaching those decisions is a painful process. Writing in the *American School Board Journal*, management consultants Oliver Brown and Norman Hollander suggest the following tips to make the budget cutting process a little easier to swallow:

- **Organize.** The board should appoint a manager (either the superintendent or a person directly responsible to him). Members of the cost reduction team should be briefed regarding the objectives and confidential nature of their work.

- **Set a goal and "pad it."** After the board determines the amount of money to be cut, the cost-cutting team should be given a *higher* goal to give the board leeway in choosing areas to be cut.

- **Clarify educational priorities.** For example, "Improvement of the basic skills of reading and mathematics should receive the highest priority." According to the consultants, this translates as "Don't make any budget cuts that will create any adverse effects upon reading and mathematics programs."

- **Identify alternatives.** Look at the budget from several perspectives. A *program* level perspective asks "At what grade levels are we already getting the most for our money and at what levels can cuts be made?" *Category* level approaches examine the advantages and disadvantages of across-the-board and selective cuts. *Unit* level perspectives examine the cost of individual schools compared with schools in comparable districts. And *fund* level analysis reveals where administrative costs for federally funded programs – such as Title I – can be reported to reduce overhead for the rest of the district.

- **Determine opportunities for cost reductions.** Look for ways to make the operation more efficient.

- **Report to the school board.** The report should restate the objectives of the project and include a one- or two-page summary of possible cuts along with all supportive details, the consultants said.

- **Select reductions and implement them.** Because of the political implications, the decisions of where to cut must be made by the school board. The board may wish to hold public hearings before making final decisions.

- **Implementation.** The board should understand the rights of school personnel, rely on legal advice for complex tenure questions and, when jobs are affected, be prepared to offer assistance in placing individuals in other positions.

and a cost-benefit analysis. The packages are reviewed at the local level, by district program managers, by the superintendent's executive team and by the board of education. Each program receives a priority ranking so that cuts, when necessary, are made in an orderly and equitable manner.

Considerable savings can be achieved through sharing program costs with other local school districts through a regionally administered board of cooperative services. The Seattle (Wash.) Education Service District No. 110 saves money for 21 local districts by pooling funds for: insurance coverage, data processing, film purchases, school security, production of educational materials, special education, media services, audiovisual equipment repair, management information systems, ERIC files and library services.

A common theme that runs through much of the advice is that *cost-cutting schemes succeed by involving people.* Successful election campaigns are characterized by citizen involvement through both the planning and implementation stages. An employe suggestion contest can yield helpful cost-cutting ideas. School-wide energy conservation can have meaningful results, from both cost and educational standpoints, when students, faculty and staff are involved in the effort.

The editors of this Education U.S.A. Special Report are grateful for the help and materials supplied by the following for inclusion in this report:

American School Board Journal, National School Boards Assn., 1055 Thomas Jefferson St., NW, Washington, D.C. 20007

Council of Educational Facility Planners, International, 29 West Woodruff Ave., Columbus, Ohio 43210

Economies in Education, a 1971 study for the President's Commission on School Finance. Available from ERIC Document Reproduction Service, Box 190, Arlington, Va. 22210

Educational Facilities Laboratories, 850 3rd Ave., New York, N.Y. 10022

Educational Facilities Laboratories, West, 3000 Sand Hill Rd., Menlo Park, Calif. 94025

Educators School Business Report, Croft-NEI, 24 Rope Ferry Rd., Waterford, Conn. 06386

Encyclopedia of Cost-Cutting Ideas for Schools, Croft-NEI, Bureau of Business Practices, 24 Rope Ferry Rd., Waterford, Conn. 06386.

Interstate Energy Conservation Leadership, Colorado Dept. of Education, 201 East Colfax Ave., Denver, Colo. 80203

Nation's Schools Report, Capitol Publications, 2430 Pennsylvania Ave., NW, Suite G-12, Washington, D.C. 20037

Pennsylvania Dept. of Education, Box 911, Harrisburg, Pa. 17126

School Management, Inc., Columbus, Ohio

Chapter 1.

Energy Conservation: Keep Those Dollars from Going Out the Windows

The skyrocketing cost of fuel in recent years has made energy waste a vice no school system can afford. In addition to monetary considerations, school districts have an ethical obligation to play a leadership role in educating the community to be conservation-minded. The bad news is that energy costs will continue to spiral upward. A panel of experts consulted by Educational Facilities Laboratories (EFL) predicts a threefold increase in energy prices during the 1973-1983 decade. The good news is that schools can realize substantial savings with a minimum of effort and expense. For example, the Clear Lake, S.D., schools reduced annual fuel consumption 33%, from 93,000 gallons to 62,000 gallons, simply by replacing poorly insulated windows in older structures and by setting thermostats back in all buildings.

This school district's experience gives credence to a National Science Foundation estimate that today's buildings waste up to 40% of the energy they consume. *American School and University* magazine reports that in 1972 the median U.S. school spent $270 per square foot on operations and maintenance. Putting those two figures together, the Interstate Energy Conservation Leadership (IECL) project wryly observes "that taxpayers' money in the amount of $108 per square foot of educational plant went up the flue or out the window in a median district."

Program Changes

One of the least expensive ways a district can reduce its energy consumption is through changes in the school program or policies that make more efficient use of buildings. One such policy requires that activities scheduled on an evening or weekend be placed in adjacent areas of a building so the entire plant does not have to be heated and lit. In some cases, weekend activities occurring in several schools might be consolidated into a single school, which could reduce custodial as well as energy costs.

The effect of several programmatic changes on energy consumption were tested in a computer simulation commissioned by the Colorado State Dept. of Education. Variations in scheduling were checked for the "typical" Colorado school with the following results:

- Shutting down the school completely during Christmas vacation *and* the month of January could save 23.9% on the annual heating bill.
- Extending Christmas vacation another week could result in heating fuel savings of 5.8% per year.
- Starting school as late as 11 a.m. in the winter and running later in the afternoon would save about 5% of the heating fuel per year.
- Using the school year-round, requiring air conditioning in the summer months, would *add* 61.2% to the annual fuel and electricity bill.
- Turning the heat on at 7 a.m. and off at 3 p.m. would reduce the heating bill by 13.8% annually.

Meaningful reductions in energy consumption can be accomplished through campaigns to increase energy awareness of all school users. Such campaigns perform a valuable educational function while saving money. The Rockford, Ill., public schools report that one school in the district cut its electricity bill by $300 during one school year by mobilizing teachers, custodians, building engineer,

principal and students to switch off unnecessary lights and reduce heating wherever possible.

An energy-conscious staff will discover many more ways to reduce waste in the instructional program. The *Encyclopedia of Cost-Cutting Ideas for Schools* by Croft, NEI's Bureau of Business Practice, Inc., suggests that art teachers wait for a full load before firing ceramic kilns. "Secretaries should get back to carbons and mimeographs, avoiding excessive use of the photocopy machine. Science teachers should make sparing use of ring burners, centrifuges and other gadgetry," writes the bureau.

The encyclopedia lists the following energy-saving suggestions for use of stoves and refrigerators, which can be applied in science labs and home economics classes as well as in the cafeteria:

- Raise refrigerator settings to the maximum allowable level.
- Eliminate refrigerators in science labs where not absolutely essential.
- Use refrigerators efficiently; avoid continually opening and closing the door. Keep the refrigerator and freezer more than half full. Items absorb and help retain cold.
- Pull refrigerators out from the wall slightly to allow air circulation behind them. Keep coils clean.
- Don't allow frost accumulation. It reduces operating efficiency. Check air tightness. If a dollar bill can be pulled easily from between the door and the casing, the seal needs replacement.
- When cooking, use small pans on small burners whenever possible.
- Preheat ovens for a minimum amount of time; don't allow ovens to remain on warm for long periods. Reduce heat as soon as possible.

Lighting

Most experts believe light levels in American schools are considerably higher than they need to be, especially in noninstructional areas. Some districts have responded by removing every other bulb in hallways, cafeterias, auditoriums and bathrooms. Others have placed lower wattage bulbs in light fixtures, both in and out of classrooms. The Education Commission of the States' research and information department reports that one school district increased its effective lighting dramatically simply by cleaning light bulbs and headlights.

Painting walls and ceilings reflective, light colors will also improve lighting while reducing the wattage needs. In newer schools, lighting can be designed to be task-oriented, rather than generalized. Different classrooms can require different light levels. For example, lights in a drafting class should be much brighter than those in an elementary classroom. The drafting student requires light for detail work, while the same light level would create blackboard glare for the younger students.

Visual tasks can also be modified to reduce the need for excessive light levels. The booklet *Energy Conservation in School Facilities* by the Colorado Dept. of Education and IECL notes that reading No. 2 pencil marks on manila paper requires about 50 times as much light as reading felt tip pen work on white paper.

"There is no relation between lighting levels and learning," says Calvin Anderson, IECL director. "Abraham Lincoln proved that." Anderson maintains that students are quieter and better behaved in a classroom using about 50 foot-candles of light, a level he describes as adequate, but without glare. "Young eyes don't require as much contrast," he adds. EFL estimates that reducing lighting from 150 foot-candles to 50 foot-candles can reduce energy consumption 90%.

In addition to reducing lighting levels, teachers should take advantage of natural light whenever possible. An EFL report, *The Economy of Energy Conservation in Education Facilities*, recounts the case of a Staten Island, N.Y., school whose classrooms had separate switches for three rows of lights. Architect Richard Stein calculates that the row next to the windows could be turned off for 75% of the school day, which would cut daytime classroom lighting costs 25% and total daytime lighting costs by about 8%.

The report also describes a Las Vegas energy study which discovered that 30% of the total energy consumed by a high school was being used between 4 p.m. and midnight when the 1,100-pupil school was occupied by only three custodians. The study estimated that the custodians, by switching off the lights and heating in local areas as they finished their work, could cut the school's energy consumption by 15% to 20%.

Considerable savings can also be gained by the

use of fluorescent bulbs, which are said to be three times more efficient than incandescent bulbs. The incandescents generate considerably more heat, which adds to the work air conditioners must perform in warm weather. The *Chronicle of Higher Education* reports that St. Xavier College in Chicago saved $14,000 a year in energy costs by replacing incandescent lights with fluorescents.

A "phantom" fluorescent tube – one which gives off no light – is saving the California Institute of Technology $35,000 a year by reducing lighting in corridors and storage areas. The phantoms replace one of two tubes in a standard fluorescent fixture, saving 50% more money than is possible from deactivating every other fixture. The phantoms cost $6 each, but Caltech officials say they last indefinitely and pay for themselves the first year. Another advantage is that the phantoms increase the life of the remaining bulb in the fixture by up to 78%, cutting future replacement costs. (A descriptive brochure and technical details are available from the distributor: Howard Krachman, Manager of Engineering, Developmental Sciences, PO Box 1264, City of Industry, Calif. 91744.)

Hot-burning incandescent lights will burn out quickly in recessed light fixtures due to lack of air circulation. Adding louvers or holes to the tops of such light fixtures may improve ventilation.

Heating and Cooling

It has been amply demonstrated, in Europe and in other parts of the world, that humans can function quite well at temperatures several degrees below the 75° to 80° found in the average American home or school. In fact, some medical experts believe the American standard of "comfort" is unhealthy. The medical question may become moot as fuel prices make the upper end of the thermostat even more uneconomical. The Federal Energy Administration (FEA) predicts that natural gas prices will triple if and when gas is deregulated. Comfort zone standards established by FEA are 68° to 70° for winter and 78° to 80° for air conditioned buildings in summer.

The Colorado Dept. of Education computer simulation found that reducing classroom temperatures from 75° to 68° in winter would save an estimated 23.4% of the annual heat consumption. Temperatures can be lowered even more in areas where students engage in physical activity.

The New York State Education Dept. has developed the following guidelines for energy use:

Classrooms	68°
Shops	63°-65°
Gymnasiums	63°-65°
Storage and other nonstudent spaces	50°-55°

The Colorado Dept. of Education recommends relocating building thermostats that are too close to windows, doors and hot or cold air sources. Heating and cooling vents should be checked to see that they are not blocked by furniture or draperies. Heat loss can be reduced in winter by closing drapes at night. In summer, classes can be scheduled around the perimeter of the building to take advantage of natural ventilation and natural light.

Savings can also be achieved in summer by running smaller equipment when the school is not full. According to the *Chronicle of Higher Education*, St. Lawrence U., at Canton, N.Y., saved $15,000 a year by using portable boilers for small summertime needs "rather than firing up its big central heating system which is not efficient for low operating levels."

Evening the Peaks

Many conservation groups advocate a system known as peak-load pricing as a means to promote energy conservation. Utilities must construct power generating facilities to handle the volume of energy needed at peak times of the day – mainly during daylight hours. In the off-peak hours, the extra generating capacity is not used, causing a loss of efficiency.

To capitalize on peak load pricing, schools can schedule certain large, power-consuming operations during the nighttime hours. Candidates for off-peak consumption, according to EFL, are electrically driven water pumps for refilling water storage tanks, dehumidifiers for controlled humidity storage and refrigeration plant compressors (provided doors to the refrigerated chambers are kept closed).

Control of energy consumption can be accomplished manually, by time clock and computers. The U. of Wisconsin at Green Bay has reduced electricity costs 27% and steam costs 53%, the *Chronicle of Higher Education* says, through manual control of its air conditioning units in the spring and fall. The manual approach demands a "hawk eye" on the part of the building engineer,

but is manageable if there are only a couple of peaks that need attention. Time clocks can control more machines and appliances simultaneously than the building engineer, but can't compensate for unexpected situations, such as a night meeting in the building.

The computer can control many machines, constantly monitor present use against average monthly use and handle some unusual situations. The disadvantage is that the computer can't understand an unusually high usage, such as a kiln, and would try to compensate by shutting off essential machines, such as compressors. The solution is to monitor appliances such as kilns manually. Excessive starting and stopping will wear out motors and other moving parts more rapidly, so adjustments to the operating schedule should be made judiciously.

Township High School in Pallatine, Ill., has purchased a computer that monitors heat and light in the schools. The superintendent reports that the amount of energy saved will pay for the computer within three years. The Mt. Prospect, Ill., schools use an IBM computer system in three high schools to monitor ventilator fans. The Mt. Prospect computer has cut electrical use more than 40% in two high schools by shutting off the fans periodically during peak hours. The computer also gives a daily print-out of energy use, allowing officials to pinpoint energy waste quickly. The district expects to save $135,000 this year.

According to the *Chronicle*, Bowling Green U. (Ohio) not only installed a computer, it reduced its electricity voltage from 128 volts to 121 and squeezed its 40-hour work week into 4½ days, lessening the amount of time buildings must be heated or cooled.

Heating and cooling outside air brought into school buildings can be a major source of energy waste. Outside air is brought into buildings intentionally for purposes of ventilation and air freshening. It is brought in accidentally through poorly caulked windows and by opening windows and doors. According to Colorado's *Energy Conservation in School Facilities*, up to one-half the total heating and cooling bill may come from either accidental or intentional treatment of outside air. In buildings with mechanical ventilation, the booklet recommends checking the settings of air intake dampers to ensure that only the desired amount of air is actually being introduced. The plant should be sealed to avoid air infiltration and outside air fans should be shut off when the building is not in use.

An energy study in Fairfax, Va., estimated that buildings relying on intake and exhaust fans could reduce the intake 50% and still be above minimum ventilation requirements. Such a reduction would result in energy savings of 25% or about $11,000 for a typical secondary school, the study says. Control of outside air is more difficult in systems using natural or gravity ventilation, but preventive maintenance measures such as weather stripping windows and sealing cracks can still save energy. The Fairfax computer simulations put these savings at about 35% if the amount of outside air introduction can be held to recommended levels.

Centennial Schools, Warminster, Pa., reduced the number of air changes in classrooms in the district's 14 schools. In the first year, the district saved more than 300,000 gallons of fuel for a cost savings of $113,683. A comparison of fuel consumption by individual schools for 1972-73 and 1973-74 showed reductions ranging from 22% to 48%.

In *Energy Conservation Guidelines for Pennsylvania Schools*, the state education department advises schools considering a reduction in air circulation to get the advice of an architect or engineer before making any changes. Any reductions should be temporary at first in case there are temperature or odor problems. "Don't go overboard," it cautions. "Use common sense and good judgment to avoid extreme measures that would leave you with too little fresh air."

In cold winter months, it is not always feasible to shut down a heating system completely because pipes could freeze and because the amount of energy needed to reheat the building might negate the savings. Most modern systems, however, are equipped with setback devices that allow building temperatures to drop to about 55 degrees. Energy studies by the Colorado Dept. of Education and Fairfax County, Va., indicate that a 10° setback in winter, such as from 70° to 60°, will yield a savings of from 12% to 20% in annual heating fuel consumption. Unfortunately, although such setback devices have been built into schools for the last 30 years, EFL estimates as many as one-third of them function improperly, largely because they are not understood by school maintenance staffs.

Maintenance

It has been estimated that physical plant personnel can control 70% or more of the energy used in a school system. Inservice training programs to explain the functions of complicated equipment

will more than pay for themselves in more efficient operation of the equipment. Preventive maintenance, like the proverbial apple a day, lengthens the life of mechanical systems by correcting small problems before they become compounded.

Periodic checks should be made of the thermal insulation on steam and hot water lines that run through air conditioned spaces, suggests EFL's *The Economy of Energy Conservation in Educational Facilities*. Also, condensers for air conditioning, refrigeration and drinking fountains should be kept free of paper or other materials that might interfere with air flow or inhibit heat transfer. Transfer coils should be kept free of dust, which can reduce efficiency 25% or more. The book also recommends repairing leaking hot water faucets and radiators promptly and checking refrigerator and freezer doors regularly for defective gaskets.

Improvement of an inefficient heating system may require an investment, but the money spent can be recouped in lowered energy costs, the EFL book continues. The biggest waste in heating systems comes from inefficient combustion, which pours soot into the air and requires more energy than necessary to heat the building. Compounding the problem, the soot settles on heat transfer surfaces, providing unwanted thermal insulation that can add 8% to the furnace's fuel consumption. Because the problem is caused by improper atomization of fuel oil before it is burned, EFL recommends checking burner alignment and condition, maintaining the fuel/air ratio specified by the manufacturer and maintaining the proper fuel oil temperature at the burner tip.

As with heating systems, improperly tuned air conditioning equipment can waste significant amounts of energy. Dirty filters and burners can drop burner efficiency by about 20% according to Lennox Industries figures cited in the EFL book. In fact, Lennox estimates that an expenditure of $1 on air conditioning equipment maintenance can yield nearly $6 in savings on operating costs. It notes that air conditioning maintenance is best done in the spring. Among the key jobs to be done are:

- Checking and repairing cooling towers
- Replenishing refrigerant
- Checking fans, pumps, compressors and other rotating equipment for poor seals, belt slippage and other defects
- Calibrating controls and
- Changing filters.

Another energy waster, according to EFL, is the tendency of maintenance personnel – in response to complaints about noise or drafts – to reduce the fan speed of an air conditioning system after the building is occupied. Reduced air flow over the coils can cause frosting, the book warns, which can produce "drastic reductions" in the performance of the system. School districts are advised to check all rotating machinery annually to ensure their operation at the proper revolutions per minute.

Because of the increasing complexity of school heating and air conditioning systems, some districts may find it preferable to sign service contracts with the manufacturer similar to service contracts commonly signed for office typewriters and duplicating machines. The contract becomes a type of "insurance" policy on the equipment. Manufacturers' representatives perform preventive maintenance tasks annually and repair problems when needed.

Maintenance Training

It is obvious that school maintenance has progressed far beyond the floor-sweeping, furnace-stoking days when maintenance employes required little education and training. The fact that mechanical technology has outpaced the average school's ability to operate it is demonstrated by the estimate of one energy expert that as many as 80% of school building mechanical systems operate improperly due to poor or nonexistent maintenance.

In response to this problem, two training programs have been developed which are available to school districts through the IECL clearinghouse. According to IECL, the North Carolina Dept. of Education Engineering Division has developed "an extensive and successful program of workshops and videotapes which are used to train plant custodians and maintenance personnel in proper maintenance and operation of their buildings." The program includes energy-related topics, such as testing burner efficiency and manual shifting of electrical load to reduce peak demand.

The second program is a curriculum package that can be offered through a local community college for credit. The curriculum was developed by the Portland (Ore.) General Electric Corp. in

How to cut costs in your facilities and operations

What to do	How it works	How you'll save	The consequences
26. Consolidate evening educational and community programs into fewer schools, on fewer nights.	By consolidation of programs, you reduce the number of evening administrators and support personnel from, say, six to two.	Administrative, instructional, and plant operations costs will go down.	Some opposition from neighborhood groups and possibly a drop in enrollment.
27. Where possible, use fewer, larger school buildings.	You close a small elementary school and transfer children to other schools.	Numbers of administrators, custodians and secretaries will go down, as will fuel and maintenance costs. Consider returning property to tax rolls (add back cost of transportation, if needed).	Increase costs of transportation; strong opposition from neighborhood school groups; specialized programs are less expensive because of larger student body; real estate can be returned to tax rolls.
28. Reduce fuel consumption by turning off fresh air intake fans after school.	Ten to fifteen percent or more of the fuel costs in most newer schools goes for heating outside air. Much of this is not necessary (new, relaxed standards are being set by states and cities).	Fuel costs will go down; small saving in electricity also will result.	Investment in modification of new control system may be required; less air pollution results from lowered consumption of fuel.
29. Reduce fuel consumption by reducing fresh air intake during the school day to required level during heating season.	Same as No. 28.	Fuel costs will go down.	Same as No. 28.
30. Turn off lights when rooms are not in use; cut down on unnecessary lighting.	Your electrical bill could be reduced by five to ten percent with careful management.	Electricity costs will go down.	Investment of time and attention of school administrators, teachers, custodians required; less air pollution will result.
31. Use C.E.T.A. (Comprehensive Employment Training Act) or work-study employes to do some renovation and repair.	C.E.T.A. employes renovate a vandalized washroom for, say, $5,000 less than what regular labor would cost.	Contracted maintenance bills will be lower.	Possible opposition of organized employes; lower quality, slower work; opposition from contractors.
32. Sweet-talk city hall into letting you use municipal employes (rather than contracting) for repairs to buildings.	City painters paint school classrooms. City electricians string wires for vandalism alarm system, and you save $2,000.	Repair and maintenance costs will be lower.	Opposition from contractors.
33. Reduce heat loss and vandalism by designing buildings with smaller, "rockproof" windows.	By halving the amount of window openings, you may be able to save 5 to 10 percent or more of the cost of fuel.	Fuel and repair costs will go down.	General opposition if structure is in any way aesthetically displeasing.
34. Cut overtime by starting a second shift.	Hourly cost of custodians on night duty drops by 50 percent or more.	Custodial salary costs will go down.	Stiff opposition voiced by labor organization(s).
35. Collect *all* direct costs when outside nonprofit groups use school buildings.	The local Rotary Club pays full direct costs rather than just custodian wages.	Custodial, fuel and electricity costs will go down.	Opposition from special groups no longer subsidized; less use of school buildings.
36. Implement training program for custodial personnel on small repairs.	Your custodian replaces corroded leaking trap; saves you $100.	Contracted repair costs will go down.	Opposition from some custodians and the custodian organization because of extra work; lower quality work results in some instances, *better* work in other instances.
37. Don't build a new school; schedule students on a 45-15 (or similar) plan instead.	You save cost of new elementary school, plus part of cost of operation.	Capital operating costs will be reduced.	A lot of citizen, parent, student and staff preparation required; data on this option varies greatly as to whether savings result.

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cooperation with a community college and several area school districts. PGE provides the materials and the instructors. (For more information about either program, write ENERGY, Colorado Dept. of Education, 201 E. Colfax Ave., Denver, Colo. 80203.)

Because the efficient operation of school plants requires increasingly advanced technical skill, the district's operations and maintenance (O&M) department should be headed by a highly trained individual with the rank of deputy, associate or assistant superintendent, advises *The Economy of Energy Conservation in Educational Facilities.* For the average school district with 8 to 10 schools and about $25 million worth of school plant, the O&M director should have a degree in engineering and a minor in management. Don't economize on salary, EFL warns, because schools are competing with public employers and private industry for the same highly trained personnel. "A school district paying an unqualified O&M director $12,000 a year will save $10,000 or so on his salary," the book says, "and lose many times that amount in unnecessary energy expenditures."

The small school district should have an O&M director with two middle management assistants, the book continues. The supervisor of maintenance should be an engineering graduate with experience and working knowledge of building trades, electrical power and even electronics for fire alarms and communication systems. The operations supervisor requires less technical expertise, but should have strong vocational training.

Building supervisor jobs need not require specific education and training, but upgraded salaries are needed to improve motivation, the book notes. Inservice training, featuring one- and two-week courses at manufacturer's service and technical schools, can keep these supervisors abreast of the latest technology. Improved salaries at the custodian level "would help raise morale," EFL says, which is a necessary component for effective energy conservation.

Building Modifications

The modifications that give the quickest return for the least investment is to add insulation inside roofs, walls and on windows. The Owen J. Roberts School District in Pottstown, Pa., saved almost $7,000 in fuel costs in one school year by installing an unusual storm window on every window in the high school. Ordinary three track frames were installed on the inside of each window. Full-length glass panes were placed in the outer-most tracks in place of screens. Where half panes are usually installed in the two inner tracks, the school put two solid panels, painted white. The solid panels can be raised to let in light. Besides saving fuel, the panels eliminate the need for window shades and permit showing of movies. The Seattle (Wash.) Education Service District has installed synthetic colored coatings on its windows to reduce glare and heat loss.

Central High School in Thomasville, Ga., is experimenting this year with a new roof that may save energy. The school's flat tar-and-pitch roof was replaced with an inverted V-shaped roof made of tin, says the Georgia Dept. of Education. On sunny days the air becomes 20% to 70% warmer in the attic than in the rooms below. Fans have been installed in the ceilings to blow the warmer air into the classrooms, reducing the need for furnace-produced heat. The new roof should also make the rooms cooler when the fans are not operating because the enclosed triangle will capture warm air that remained in the classrooms when the roof was flat. The school has also staggered morning starting times for school equipment to avoid the peak load cost of electricity.

The Lake Washington schools in Kirkland, Wash., have built a hedge against fuel shortages and higher prices into their system by equipping their buildings to use two types of fuel. When natural gas runs out, one high school flips to propane and two other high schools and three junior highs flip to diesel, either light or heavy. The 16 elementary schools are not as secure because they are heated with electric units in each classroom. Four, however, have central heating to which conversion equipment was added during the 1976-77 school year. The program was begun in 1971 to guarantee continuous heating if a furnace broke down. The conversions have been financed by money in the school's utility account, instead of by capital expenditures. School officials look forward to playing off one fuel dealer against another "postponing the effect of price hikes and thumbing their noses at OPEC."

Michigan State U. has a dual energy system that has been energy efficient since 1924. The university's power plants provide heat, hot water and air conditioning at the same time they generate electricity. According to the school, the plant gives about twice as much energy for every fuel dollar as a conventional power plant which generates only electricity.

The important thing to keep in mind with any building modification, warns IECL's Calvin Anderson, is to look at all the factors and how each will be affected by the change. He said one school added insulation to a roof and the roof collapsed after a heavy snow. In this instance, the energy-wasteful heat loss was providing a valuable safety valve by melting the snow accumulation off the roof!

Waste Heat Recovery

Heat generated by mechanical equipment and by human beings in the classroom is often exhausted into the atmosphere. Such heat cannot only be reused, it can reduce cooling costs that are often required in winter to cool overheated rooms. According to *The Economy of Energy Conservation in Educational Facilities*, classrooms have an unusually high heat gain because they are three times more densely occupied than a typical office. Light fixtures generate additional heat, causing ceiling areas to sometimes reach 120°. Under such circumstances, cooling equipment is activated, even though the outdoor temperature may be below 20°. When waste heat is reused, energy is saved through not having to cool the building and because the waste heat is transferred to another area of the building that needs it.

Two techniques are available to remove the light-generated heat. One is to pipe cooling water through lighting troffers (ducts). The second is to exhaust the room air through air-cooled fixtures into the area above the room ceiling. The water method is more efficient, EFL says, because it reduces the required capacity of the air conditioning system's refrigeration equipment, fan horsepower and duct size. The air-cooled system does not reduce the cooling capacity because it is part of the air conditioning system.

A San Diego office building installed the water-cooled lighting and air conditioning troffers and double glazed its windows. The two additions cost $70,000, but the owner saved $100,000 on his air conditioning because a smaller system was needed. In addition to the $30,000 capital savings, the building owner will benefit from lower operating costs. According to EFL, heat exchangers that recover normally wasted exhaust heat can reduce winter heating energy consumption by 30% to 35% and summer air conditioning energy consumption by 15% to 20%.

Solar Energy

Solar energy is becoming popular among school districts across the country as a means to reduce operating costs using a renewable, nonpolluting natural resource. Although initial capital expenditures are high and the systems are too new for definitive conclusions on their effectiveness, the initial evidence is that solar collectors are worth the investment.

Winter heating bills were reduced significantly in three out of four schools with solar collectors financed by the National Science Foundation, says *Schoolhouse*, an EFL newsletter. In the fourth school, heating costs were reduced slightly during the two-year experiment. However, all four schools have chosen to keep the collectors.

Maintenance costs ran high the first two years, mainly because the manufacturers were inexperienced in installing units on existing buildings. The maintenance costs were paid by NSF. Since the problems have been ironed out, future maintenance should be minimal, *Schoolhouse* says. Rain takes care of soot and grime accumulation on the solar panels.

Concern about vandalism ran high at first because there are at least 250 large glass or plastic panels in each collector. Fortunately, two schools suffered no breakage, while the other two lost only a few panels to thrown stones. The four schools participating are: North View Junior High in Brooklyn Park, Minn.; Grover Cleveland Junior High, South Boston, Mass.; Faquier County Public High School, Warrenton, Va. and Timonium Elementary School, Baltimore, Md.

Much of the solar energy activity is happening in sunny California with the encouragement of the State Dept. of Education. Myron Green Elementary School in San Diego is heated with 180° sun-warmed water. The system becomes part of the educational experience because a display panel with diagrams and thermometers allows the students to monitor the system at all times.

George Askin, California Dept. of Education architectural advisor, recommends using solar energy to heat outdoor swimming pools and school buildings and to provide hot water for shower and kitchen use. The amount of water storage needed to operate the system is openly debated, so Askin suggests that districts allow for extra storage space in case it is needed in the future. Cooling systems using solar energy are relatively expensive to construct, but further research is expected to reduce costs for future users. The Energy Research

and Development Administration awarded a demonstration grant to the Irvine (Calif.) Unified School District to remodel El Camino Real School. A special type of solar collector provides cooling through absorption chillers.

Fairfax County Schools, Va., have built an underground elementary school in Reston with solar collectors on its playground/roof. A sketch of the building indicates it has many windows at several shady, recessed entrances, giving indirect light and minimizing the transfer of heat and cold. The school opened in January, 1977, and energy costs are projected to be $20,000-$30,000 less than for a conventional school using electricity or oil for fuel.

The EFL report recommends that schools be compact and be constructed of heavy, heat retaining building materials like stone, masonry and concrete. The use of traditional materials promotes conservation three ways:

- It reduces the capital cost for heating and cooling equipment, which can be designed for a lower capacity;
- It assures more efficient energy use, because equipment is most efficient when operated close to capacity; and
- It relieves peak demand on electrical power utilities.

Compact building size reduces heat gains and losses because the surface area of the roof and outside walls is reduced. EFL adds, however, that certain site advantages providing breeze and shade can favor a more sprawling design.

Wall shading is a basic, yet often neglected, method for reducing energy consumption, EFL says. Shading can be achieved by placing large expanses of windows on north-facing walls to capture indirect lighting. Trees planted on western exposures provide shade in summer and lose their leaves to facilitate solar heat transfer in winter. Double-glazing (two layers of glass with an insulating air space in between) prevents winter heat loss as well as summer heat gain. Double-glazed, shaded, heat-absorbing glass reduces heat gain by about 85%, the report says.

Conservation at the District Level

The greatest savings in school energy costs can best be achieved through a coordinated, district-wide effort that is characterized by visible support from the top. Schools in Northglenn, Colo., a suburb of Denver, instituted such a program in 1974 and during the first nine months saved an average of more than $3,000 a month on their gas and electricity bills, despite a 5% increase in rates.

In the pamphlet *District Level Plan for Conservation,* IECL and the Colorado Dept. of Education drew from Northglenn's experience and that of other successful schools to outline the necessary steps for a district-level conservation program. The first step is to appoint a district-level team that includes:

- √ The superintendent or his representative
- √ Building principals or their assistants
- √ A district energy manager (assigned the specific task of administering the conservation program)
- √ A representative from the board of education
- √ Teachers
- √ Students
- √ Maintenance and custodial staff
- √ Food services personnel
- √ The district business manager
- √ A representative from the PTA
- √ A representative from the local utility company
- √ Outside professionals such as architects and architectural engineers
- √ Transportation staff

Those selected for the committee should be genuinely interested in conservation and should be active participants. One person should be designated as the team leader and it is suggested that teams be organized on the building-level as well. In Northglenn, a district-level maintenance team was organized which made regular visits to each school to assess energy usage and conservation needs.

Ample time should be set aside for planning, the pamphlet suggests, because success depends on well-thought-out procedures. Among the topics that can be discussed at planning meetings are:

- The assignment of responsibilities and tasks to specific groups and/or individuals
- A thorough review of the district's energy situation
- Strategies for the involvement of the entire educational community

- The planning of an energy audit of the school district
- The formulation of evaluative and follow-up procedures
- The setting of goals and the establishment of time-frames for their achievement
- The planning of a public information program to inform district personnel and the community about the existence of the project and its goals
- The preparation of energy conservation checklists for district and school building use
- The possibility of consulting outside experts in the field of energy management.

Energy Audits

Energy audits perform a valuable function by providing a data base against which future conservation efforts can be measured. The audit records the energy use patterns of each building in the district – including garages, storage buildings and administrative offices. According to the IECL pamphlet, the audit makes possible an "energy budget – so that administrators begin to think of dollars and BTUs in the same terms." Also, by showing graphically where energy costs are concentrated, the audit encourages students, teachers and administrators to try harder to cut energy waste.

The audits can be conducted by the district's conservation team, a representative of the utility company or an outside professional who works under contract to the district. Aurora, Ill., public schools brought in engineers from Northern Illinois Gas Co. to run efficiency tests on each of their boilers. Hutchinson, Kan., schools brought together utility company engineers and school district architects to study buildings and develop suggestions for improving efficiency. The suggestions were followed up by a self-study by the district's staff.

The Mamaroneck, N.Y., school district hired an engineering firm to inventory their energy situation. The engineers found "units of radiators that have no controls, compressors that run without stopping and an overall neglect of proper maintenance of existing systems," according to Asst. Supt. Paul McDevitt. "Who was concerned about six cent oil? I wasn't, but I'm damned concerned about 40 cent oil."

The IECL project has a mini-audit program using persons who have both engineering and educational backgrounds who have "no vested interest in selling the equipment," says Calvin Anderson. The nonprofit organization has qualified professionals in various parts of the country who do this service for a moderate daily fee plus expenses. Anderson says the auditors take the maintenance staff along, making the audit a training experience. After a couple of schools, the staff can practically do the audit themselves, he says.

One big advantage of the mini-audit is to have a pair of "foreign eyes" looking at the system, Anderson explains. An IECL audit of a Boulder Valley, Colo., school saved the school $250 a month by uncovering a small adjustment on a time clock that activates the evening and weekend setbacks of the mechanical equipment. The setback device had always been there, but it took an "outsider" to discover that it wasn't working properly.

Federal funds may soon be available to pay for audits and other energy conservation measures. According to FEA, $25 million will be distributed through the states to local energy conservation projects. Local school districts should contact their state energy office to ensure that they are included in the state's plan. Congress has approved, in principle, another $25 million expenditure through an authorization in the Energy Conservation Act of 1975.

Follow Up

After the energy audit and the first flurry of activity have occurred, follow-up is advisable to avoid having the first good intentions succumb to the press of other concerns. The IECL booklet suggests that *people*, not just paper, be involved in the follow-up. "For example," it reads, "a letter from the superintendent urging principals to set up their own conservation efforts is not half as effective as a constructive visit from the district maintenance team to identify energy consumption problems and correct them." The booklet adds that such visits should be "in the spirit of rendering assistance" – and not in a threatening way. "It is important that all district personnel involved in the project feel as though they are working together

for a common goal," the booklet notes.

IECL recommends monthly audits to keep track of the amount of fuel and electricity used and the peak demand level for electricity. Some school officials argue that monthly audit results should *not* be published because they can create hard feelings among administrators who have tried to conserve but whose schools have not done well. Those favoring publication maintain that the audits stimulate interest in conservation and encourage a spirit of competition. Northglenn publishes its results and has found that publication, overall, has a positive effect.

The IECL pamphlet also recommends that energy tasks be reduced to checklists which are assigned to specific persons and which require the person's signature and the date and time the action was taken. The checklist forms may be attached to clipboards and mounted in a convenient place, such as a bus garage or boiler room.

Conservation Incentives

Interest in energy conservation can be stimulated by offering a "rebate" on the energy saved back to the individual school for use in the instructional program. In Rochester, N.Y., building principals receive 50% of the money saved. Savings are calculated on 1973-74 as the base year. During the first seven months of the program, some schools received rebates of nearly $3,000 for their conservation efforts.

In a similar vein, the Gilmer County, W. Va., school system compared costs on electricity and natural gas from the previous year and returned *all* the money saved to the individual school. In addition to saving money, the campaign was a learning experience for 1,700 students. According to the West Virginia Dept. of Education, the students learned to read meters and thermometers and to appreciate the importance of preventive maintenance. The students wrote journals, skits and speeches and painted posters. By the end of May, 1976, the county school system had saved 39% on electricity over the previous year. The natural gas savings was 17.5%. The student body received $4,326.01 – the actual savings – plus a bonus of $625 to spend on the school.

Chapter 2.

Staff Utilization: Potential, And Problems, Are Great

Because staff salaries can comprise as much as 80% of a district's budget, efficient use of staff must be a top priority in any cost-cutting plan. Efficient use, however, should not be equated with a reduction in the total number of persons employed. In the words of Bastrop, Tex., Supt. C.H. Evans, "Understaffing of services such as the tax office and business office can result in errors and improperly done tasks which will create additional costs or reduced revenue."

Efficient use can mean a redistribution of the workload to relieve highly paid teachers and administrators of tasks that can be performed by persons with less training. According to *Phi Delta Kappan* magazine, a study of Portland, Ore., elementary schools revealed that teachers spent only 30% of their time in activities even remotely related to academic instruction – 100 minutes out of the 5½ hour school day. Less than one hour was spent in individual or small-group teaching, an average of about two minutes per child in a class of 25.

Similarly, a New York City Board of Education survey, reported in the *New York Daily News*, found that hundreds of high school teachers were spending much of their time on such nonteaching duties as hall patrol, record keeping, clerical assignments, lunchroom supervision and acting as treasurer. Clearly, school districts will get more for their teaching dollar by employing teacher aides and clerical assistants to perform these tasks.

Class Size

The issues of class size and pupil-teacher ratios are politically volatile ones that must be approached in terms that will not adversely affect the quality of the educational experience. Class sizes are often spelled out in contracts with teachers and ratios can be an emotional issue with parents who are already dissatisfied with the educational system. The safest, most prudent course to follow when determining class size is to evaluate each subject on its own merits rather than relying on an across-the-board formula. Nickolaus L. Engelhardt, president of the nation's oldest educational consulting firm, Engelhardt & Engelhardt Inc. in New York, points out that typing can be taught successfully in classes of 100 pupils. Other schools, relying on a "magic standard" for class size, limit all classes to 25 pupils, which is wasteful, he says.

Using this same principle, certain high school classes could be patterned after the university system, in which some subjects are divided into large lecture sections three times per week and small discussion groups or labs two days per week. The teacher presents the course material in a lecture format and trained student discussion leaders or instructional aides, under the supervision of the teacher, explore the course content in depth in the discussion groups.

The Port Arthur (Tex.) Independent School District circumvents the class size monster in their specialized Home Start program by using itinerant teachers. Supt. Frank Kudlaty explains that this teacher instructs 4-year-olds and their parents in the children's homes, which enables the teacher to serve 75 children, rather than the conventional 25.

The Deer Park (Tex.) Independent School District has found that adding an instructional aide to assist a certified teacher is less costly than forming an extra class and adding a teacher. Marian Central Catholic High School in Woodstock, Ill., stretched its teacher utilization when teachers agreed to teach a sixth class in exchange for no duty assignments.

The decision to hire more teachers takes on an added dimension in a school district where enrollments are declining consistently or fluctuating from year to year. Salt Lake City Supt. M. Donald Thomas recommends that pupil-teacher ratios be based on a projected mid-year enrollment rather than a first of the school year enrollment. In

districts where enrollment is declining, he observes, the loss of students is continuous through the year. Basing staff on mid-year enrollments can not only save money, it can provide more equitable staffing patterns between elementary and secondary schools.

High school administrators can make more efficient use of specialized teachers by offering certain low-enrollment subjects every other semester or even every other year. In every other year scheduling, careful counseling should be required to ensure that students do not miss out. The *American School Board Journal* suggests that third, fourth and fifth year classes in a single foreign language be combined. Some staff development may be required because instruction would be more individualized.

Differentiated Staffing

The techniques of combining classes across grade levels and parceling classroom duties to different types of staff was developed to an advanced degree through a system known as differentiated staffing. Although it was highly touted in the early 1970s as a means of reducing instructional costs, it has been both slow to catch on and, where it has been adopted, has not reduced costs significantly.

Differentiated staffing has been used most often in open space school settings where teams of teachers give students individualized instruction. The cost saving was based on the theory that effective teaching is more closely related to a favorable pupil-staff ratio than to a low pupil-teacher ratio. Models for differentiated staffing were developed by management consultants Cresap, McCormick and Paget in a study, *Economies in Education*, written for the President's Commission on School Finance and available from the Educational Resources Information Center at Syracuse U. in New York. The consultants estimated that differentiated staffing, if adopted nationwide, could reduce instructional salary costs by about 12%.

The "model" described by the consultants included the following staff classifications:

- Staff teachers who teach in teams, using techniques of individualized instruction (bachelor's degree and certificate)
- Associate or beginning teachers who work under the supervision of experienced teachers (bachelor's degree or intern)
- Teacher aides who assist in both clerical and some instructional tasks
- Senior teachers who supervise staff teachers and participate in teacher teams (master's or equivalent) and
- Master teachers who also have district-level responsibilities for curriculum development (doctorate or equivalent).

When instruction is individualized, the pupil works at his/her own pace using materials appropriate to their level of advancement. "Under this arrangement," the consultants wrote, "the teacher becomes more a manager of the learning process and less a dispenser of facts – which many educators believe can be done as well or better by books, programmed texts, films and television."

Since the *Economies in Education* study was released, differentiated staffing seems hardly to have generated the educational revolution that was once hoped for. Its lack of success is probably attributable to two factors. First, the back-to-the-basics movement has dampened the enthusiasm for open, ungraded class settings, individualized instruction and other educational innovations on which the differentiated staffing model is based.

Second, and more importantly, differentiated staffing has met opposition from teacher associations because of its implications for class size, salary and tenure.

Differentiated staffing is not always opposed by teachers. In fact, Walnut Hills Elementary School in the Cherry Creek School District near Denver, Colo., implemented a differentiated staffing model in 1969 that was designed by the teachers themselves. The model has apparently been well-received by the staff. The Walnut Hills system is still operating with only small modifications. In this open space, nongraded elementary school, teams of five certified teachers (one is a team coordinator) and three to four paraprofessionals teach between 125 and 150 pupils.

But does it save money? No, says Jack Platt, director of elementary education for the Cherry Creek district. True, Walnut Hills staff expenses were lower the first year, Platt says, but that was because the school was new and the staff was young – not because of differentiated staffing. *Economies in Education* cited Walnut Hills as a school that had decreased instructional costs 22%. The calculation was based on Walnut Hills' costs compared with those of an elementary school with

traditional staffing. Platt notes that the Walnut Hills model, as described in the study, assumes that each of the three teaching teams would always have a beginning teacher – with a correspondingly lower salary. This has not been the case.

Differentiated staffing was instituted as a means to use the present amounts of money more effectively, Platt says, not to reduce costs. Cherry Creek allocates money to each building in the district on the basis of pupil enrollment and lets each building staff determine its own structure. Although there are variations among buildings, each elementary school has adopted differentiated staffing to some extent. "We have no evidence that differentiated staffing could ever save any money," Platt says.

Substitutes

The money budgeted for substitutes can be an expensive item – both in terms of actual dollars spent and in cost-effectiveness. Because the substitute is often unfamiliar with the teacher's lesson plans and, in a specialized course, may even be unfamiliar with the content material, substitutes are often "glorified babysitters" who do little to advance the students' understanding of the subject. The most direct way to reduce the cost of substitutes is to reduce the *need* for them by minimizing teacher absenteeism. While some administrators might respond to the absenteeism problem by cracking down on teacher excuses or sharply limiting the number of absenses allowed, a New York study indicates just the opposite course of action is more effective.

According to the *American School Board Journal*, a three-year study of 12 school districts in Nassau County, N.Y., indicates that districts with policies of unlimited sick leave have *lower* rates of teacher absenteeism than districts with limited sick leave. The study covered the absentee rates – but not the causes – for the years 1965-68. Six of the districts offered limited sick leave and the other six had an unlimited policy, which offered full pay for teacher illness regardless of the number of days used. The districts with limited sick leave policies had a 20% higher absentee rate than those with unlimited sick leave. According to the magazine, the higher absenteeism "cost" Nassau County $2.6 million during the three years – enough to pay for all substitute teachers in all the districts studied.

The Madison, Wis., public schools increased substitute effectiveness and reduced costs by using administrators in the classroom. Each of the district's approximately 140 administrators – principals, coordinators, supervisors and others – serves three days per year as a substitute teacher. The primary purpose is to "bring administrators back to the nitty gritty of teaching," enabling them to carry out administrative duties more effectively by improving rapport with teachers and students. The plan also saves money. In 1971, Madison paid $27 per day for substitutes, and using administrators as substitutes resulted in more than an $11,000 in savings on an annual basis. This plan is not only workable in larger districts; it also saves more money.

Another approach calls for hiring two or three full-time "permanent substitutes" who fill in daily wherever they are needed. As proposed in *Encyclopedia of Cost-Cutting Ideas for Schools*, the new method would require the cooperation of the faculty to fill in when additional substitutes are needed. "This can often be sold to the faculty," the booklet states, "on the premise that they have daily contact with the permanent sub and can communicate their instructions directly when they expect to be absent." It notes the permanent presence of the "subs" also makes for good follow-up and that when no teachers are absent, the subs are available to give teachers extra help.

Enrichment Programs

The Syosset (N.Y.) School District is tackling the substitute problem at its high school from an entirely different angle: money which normally would be budgeted for substitute teachers instead pays for an enrichment program of films, guest speakers and offbeat classes. The program not only saves money; it reaps educational benefits from a program standpoint and as a learning experience for the students who help run it. Instead of budgeting $50,000 a year for substitutes at the 2,300-pupil high school, $30,000 is allocated to the enrichment program and $13-$14,000 is reserved for substitutes. Teaches absent for a day or two may request either a substitute or an enrichment program for their class. Those who will be absent three or more days must have a substitute so their classes do not fall too far behind. "Barely 15% of the teachers request substitutes," says Norman Schwartz, assistant superintendent for secondary education.

Instead, English classes have been treated to

How to cut costs in your instructional program

What to do	How it works	How you'll save	The consequences (not all of them are bad)
1. Hold the line on salary schedule increases this year (but remind everyone that step increases will remain intact).	Ms. Jones retires at $18,000 and is replaced by someone at $9,000. You keep most of it — $8,000+ per turnover.	Turnover of staff (exchange of higher-step for lower-step personnel) saves money.	Stiff opposition from teacher union; and little turnover.
2. Freeze salaries (no increases for anybody).	Same as No. 1, only more so.	Same as No. 1, only more so.	Same as No. 1, only more so.
3. Encourage early retirement of staff by providing a cash bonus or retroactive pay raise (and let retirees have first choice on substitute lists).	Ten teachers averaging $16,000 in annual wage retire early; each receives a $2,000 bonus. You hire ten replacements at $9,000, thus saving $50,000.	Increased turnover of staff saves difference between top-step and entry-step salary level.	Possible ill-feeling from older, dedicated staff; opening of some positions for younger, unemployed teachers; high retirement income in case of retroactive salary raise.
4. Reduce number of small classes in secondary schools.	Combine third, fourth and fifth level French students into one individualized class to save the cost of one teacher's salary.	By offering certain courses every other semester or year, and/or by increasing class sizes, you'll need fewer teachers on the payroll.	Opposition from teacher union and from parents of children in such advanced courses; also, greater individualization of instruction because of greater diversity of instructional levels in a class; some investment in staff development may be required.
5. Schedule staff in accordance with a carefully projected (probably lower) enrollment.	Births in 1969 were down 25 percent over 1968, so you may need one fewer kindergarten teacher.	Staffing for next year's projected enrollment can mean fewer unintended small classes, lower payroll costs.	Opposition from teachers and parents; need for some reshuffling of classes in September (and a contingency plan if you guessed wrong).
6. Reduce the tenured staff with a bonus plan for resignation within specific programs.	Coach Jones receives an offer to work somewhere else. Your bonus of $1,000 tips the scales.	You eliminate unnecessary staff and you reduce salary costs.	Possible opposition from parents, student, and teacher groups — especially if popular personalities are involved.
7. Use paraprofessionals to replace staff that has study hall or corridor duty, to enable teachers to devote this time to instruction.	Five teachers teach four periods and each has one non-professional duty period. You substitute one teacher aide for these periods and save the difference between a $12,000 teacher and a $5,500 aide.	Fewer teachers required to staff schools if actual teaching periods are recovered; lower salary costs.	Opposition from teacher union; some investment in paraprofessional staff training supervision required if plan is to work.
8. Institute a compulsory retirement age.	Average distribution of staff by salary step goes down. You save the difference. In the first year of implementation, large savings are possible ($18,000 teacher exchanged for a $9,000 teacher).	Average cost per instructional staff member will go down.	Opposition from teacher and parent groups, especially if competent, dedicated teachers are involved; opens up employment opportunities (directly or indirectly) for unemployed competent teachers; keeps greater spread of age, experience on staff.
9. Replace credentialed educators in specific administrative positions with lower salaried, specialized, full-year, full-time personnel.	One of four vice-principalships opens up in a large high school. Hire a young MBA at lower salary *for 12 months*, full time, rather than adhering to the former ten-month, six-hour day pattern.	Administrative costs should decrease (and effectiveness should increase).	Opposition from teacher union; more hours and days of job coverage for less money; more specific training and experience for job.
10. Hold off some teacher hiring until September if elementary class sizes are the least bit indefinite.	Your contract requires a limit of 30 in a class. Your projection shows 65 enrolled in Grade 6 for one school. But it's 50-50 that only 60 pupils will appear. So you take the chance and don't hire that third teacher unless you actually must.	You'll save on staff salaries.	A less smooth start for a few classes.

11. Combine certain grades.	Six classes of 22 students each, with six teachers (Grades 2-6), become five classes of 27 each by combining pupils (such as a class comprising 27 third and fourth graders).	You'll reduce numbers of small classes that occur when classes are organized strictly by grade level.	Opposition from teachers and parents; investment in staff training for more individualization of instruction required.
12. Put all administrators on an eight-hour day, 12-month year (with four-week vacations, of course).	You put several administrators, say, on refining bus routes, and they come up with a revision that eliminates the need to buy one bus that would have cost $10,000.	More time for long-range planning will produce lower future costs.	Opposition from those individuals directly involved.
13. Adopt new textbooks less frequently (but that doesn't mean being lax about adoption standards).	You increase from three to five years the mandated period of adoption.	Outlays for textbooks will go down.	Some embarrassing instances of out-of-date material in hands of students if not carefully monitored.
14. Collect on lost, damaged, or stolen books — or require student who is responsible to perform work to earn cost of books.	Replacement costs of, say, $20,000 are reduced to $15,000. Collections increase from $1,000 to $2,000.	Textbook losses and replacement costs will go down.	Some unpleasant situations with parents, students; requires flexibility in enforcement where situation is beyond control of student.
15. Charge fees for adult education equal to district's direct costs (with exceptions for low-income and elderly).	You charge $35 rather than $20 per course, thereby cutting your subsidy costs $1,500 per 100 adult students.	Subsidies to these adult programs out of tax revenues will go down.	Opposition from those currently benefiting; some drop in enrollments, elimination of some programs.
16. Place curriculum development projects on a competitive contracted basis (encourage groups of teachers to bid).	Six teachers work on a curriculum project for six weeks during the summer. You agree to pay $6,000 for the contract, but to make no payment until the product is finished and approved. You could save $4,000 and get a better product, but be sure to develop specs carefully.	Curriculum development costs may go down.	Possible opposition from teacher union.
17. Eliminate foreign language program in those elementary schools that cannot demonstrate that youngsters are learning the language sufficiently to write and speak it. Make junior high foreign language program strictly voluntary within the curriculum.	Any number of teaching positions can be eliminated through elimination of, say, a Grade 4-6 foreign language program.	Salary and material costs will go down.	Opposition from some teachers and parents; some students could miss experience because course is made noncompulsory (perhaps some investment required in aptitute testing to minimize this).
18. Reduce number of specialist teachers, eliminate their formal teaching load, and have them help the regular teachers.	You eliminate, say, two of four specialist teaching positions in science, and you assign the remaining specialist teachers the new role of helping regular teachers teach science more effectively.	Salary costs will go down.	Opposition from teacher union, some parents; fewer interruptions of classes and less fragmentation of programs.
19. Use paraprofessionals instead of teachers for on-the-road segments of driver training instruction.	Jones, a teacher, earns $15,000 a year. He works five hours a day, 180 days, and gets extra pay for summers and afternoons. Smith, a trained paraprofessional, is paid $4 an hour ($7,000 a year for an 8-hour day, 11 months a year).	You'll save as much as $12 an hour in rate difference between a teacher and a paraprofessional.	Opposition from teacher union and state department of education middle management group; careful training, supervision required; result could be more effective program.
20. Replace your all-teacher physical education staff with a team of professionals and trained paraprofessionals.	Three teachers cost $45,000. One teacher and three trained aides cost $30,000.	Salary costs will go down.	Stiff opposition from teacher union; if well-planned and organized, a more effective program could result.

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guest lectures by Isaac Asimov and George Plimpton; art students have viewed demonstrations by Japanese brush painters, tinsmiths, potters and other craftsmen; and health education classes have heard from proponents of legalized abortion and planned parenthood as well as speakers for Right to Life. Some of the more popular presentations – like classes in yoga, karate, judo and outdoor survival education – have been held over or repeated several times a year. An enrichment program demonstration of the Moog Synthesizer sparked so much interest that the music department now offers a class in electronic music.

The major expenses of the program are the salaries for a faculty coordinator and two part-time assistants. Other expenses are film rentals (scheduled once a week), lecture fees (three each day) and charges for miscellaneous equipment, including microphones, risers (for concerts) and extra movie screens. Although the faculty coordinator directs program operations, a group of 35 to 50 students handles most of the detail work, such as lining up speakers, scheduling the events, advertising the programs (through posters and school announcements), checking attendance and evaluating the quality of the presentations. There are five student crews – one for each day of the week – and each crew is managed by a student "producer." The producers report to a student coordinator who in turn answers to the faculty coordinator.

"The enrichment program has been a remarkable learning experience for our students," says Schwartz. "They go after program participants, make the arrangements, see that they have coffee or lunch and write thank-you letters."

Although students handle the day-to-day mechanics of the program, the faculty coordinator's position is important. "He's/she's got to be something of a diplomat," Schwartz observes, "and should have professional status to deal effectively with the faculty." Department chairmen are always coming to him/her with program suggestions and he/she has to see that they are all fairly treated. The coordinator also must be able to put his/her foot down if he/she suspects that a teacher who wants a class to attend an enrichment lecture is simply trying to get out of teaching a lesson.

The program has had some failures, which is not surprising considering the volume of offerings. Evidence of the program's effectiveness lies in the fact that variations of the Syosset plan have been instituted in more than 30 schools in the area.

One variation is a program in a Westbury, N.Y., high school which permits students to audit designated classes or engage in other activities when a teacher is absent. Classes which can be audited include art, photography, printing and home economics. Students can also go to the library, snack bar, study center or to a recreation area.

The four-year-old Westbury program uses four full-time substitutes to help keep order. The Westbury High principal calls the program "sensational. We've given our students an adult, humanistic alternative to spending their time with substitutes, and they appreciate it," he says.

"Class cutting is down to nothing and discipline has improved tremendously," he said in an interview. "At first we thought everybody would end up in the snack bar, but after a couple of weeks of getting used to their freedom, the kids buckled down. The library is filled, the study center is filled, and the kids are using the opportunity to audit the special courses. We'd never go back to the old way."

Administrative Efficiency

Teachers are not the only educational staff who become mired down in clerical details. Educational consultant Engelhardt reports that principals often complain about the hours spend filling out forms, answering the phone, meeting outsiders who come to the office and maintaining records – tasks which can consume up to 70% of their time. "If they could devote 70% to instruction," Engelhardt reasons, "then central supervisors would not be as essential."

Engelhardt suggests that principals list the tasks they have to accomplish and the time required to do them. Those tasks which could be adequately handled by a secretary or clerk should be written into a job description and the additional clerk should be hired. "Remove the principal from the school office location," Engelhardt advises, "and give him a room in the heart of the instructional operation to work unencumbered with teachers and pupils."

Job descriptions, along with the time needed to complete each task, should also be written for each line and staff position in the central office, Engelhardt says. Compare the job descriptions of each administrator to see if there are tasks for which more than one person feels responsible. Eliminate duplicate tasks where possible, he adds, and compare all job descriptions.

The functions of two different positions may sometimes be merged into one. As examples,

Engelhardt suggests combining the director of pupil personnel services and the director of special education; or the director of research evaluation can be combined with the director of school plant planning.

Deer Park (Tex.) Independent School District has saved administrative money by using team leaders at the elementary level and department chairpersons at the secondary level instead of hiring assistant principals.

McLoughlin Union High School in the Milton-Freewater (Ore.) School District has modified the system further by naming area chairpersons instead of department chairpersons. Three or four area chairpersons – each representing several departments – are sufficient for each building, writes Jim Hitter, principal. The area chairperson can replace 12 to 14 department chairpersons for a savings of several hundred dollars.

This small, consolidated district in northeastern Oregon has also taken the unusual step of abolishing the central office and the superintendent's job. The Milton-Freewater district now employs separate superintendent/principals, for a savings in each district of several thousand dollars.

In neighboring Washington state, small school districts have benefitted from some centralized public information programs developed in the 12 regional educational service districts (ESDs). Certain programs, writes ESD No. 112 in Vancouver, rely on public awareness for implementation, such as the Child Find program for handicapped children. By using the existing public information specialists in the ESDs, a wide geographical area can be saturated with news stories and radio and television announcements.

The Seattle ESD No. 110 reports increased efficiency through the use of mini-computers and on-line computer access stations. The computers have allowed the agency to reduce clerical staff for repetitive operations in finance and information systems. It has also resulted in more efficient use of data in the preparation of reports.

Contracted Services

School administrators should not automatically assume that a service the school performs for itself in-house is less expensive than the same service would be if contracted by an outside firm. The West Chester (Pa.) Area School District discovered it could hire trained nonteachers to teach driver education for considerably less than they were paying certified teachers. The switch to contracted driver's ed saves the district more than $31,000 a year and gives the school more flexibility in its driver training program – the nonteachers were willing to work nights and weekends. Contracting driver's ed not only saved West Chester a bundle of money, the idea won second prize in a national cost-cutter contest cosponsored by the Assn. of School Business Officials and *Nation's Schools Report.*

Just as a certified driver education teacher is an unnecessary luxury, the traditional full-time school building nurse may be an expense not justified by actual need. Many functions traditionally carried out by a nurse could be done just as well by clerical staff with some first-aid training. The district may find it is more cost-effective to employ a few nurses at the district level to coordinate innoculations and doctor and dental services. Another option is to contract with the local health department for part-time nursing services.

A study of school districts in Massachusetts concluded that it was less expensive to pay doctors and dentists only when needed, rather than to employ them part-time. The level of medical service offered by each school varies, as do medical fees, so an analysis of conditions within an individual district is advisable before any decisions about contracts are made.

Early Retirement

School districts facing a financial squeeze may be forced to lay off teachers to effect large-scale savings. Because layoffs are usually based on seniority, minority teachers and young teachers with only a few years experience are likely to be the hardest hit. In response to the payroll pressures created by increasing costs and declining revenues, two school districts – the San Francisco Unified School District and the Jacksonville (Ill.) Unit District 117 – were among the first to develop voluntary early retirement programs. In both districts, teachers who have reached a certain age and completed a specified number of years with the district may retire before age 65 and retain an option of earning additional money from the district.

As reported in *Educators School Business Report,* the San Francisco early retirement plan saved the school district approximately $900,000 the

first year (60 teachers participated at a savings of $15,000 each). The district expects some 100 teachers to take part this year, for a savings of $1.5 million.

Early retirement is one of three options open to San Francisco teachers; the district also developed part-time employment and job-sharing options. Under the early retirement option, known as Plan A, a teacher who reaches age 50 may retire if he or she has 10 years of full-time satisfactory service in California public schools. The teacher is entitled to the full city and state pensions, plus income earned as a consultant to the district. (Persons choosing early retirement can agree to work 20 days per year at $200 per day for a salary of $4,000 in addition to their pension.) The consultant decides which days to work and the duties are mutually agreed upon by the consultant and the district. The contract lasts for 10 years or until age 65, whichever comes first. Consultants may, however, drop the plan at the end of any school year. They may also retain membership in their current district health plan.

Jacksonville teachers who elect to retire early receive a one-time retirement stipend and agree to serve as a consultant for five years or until age 65. The stipend ranges from $600 to $1,250, depending on age and salary. It is added to the final paycheck so that it counts toward the teacher's total salary on which the pension is based. According to Supt. Robert L. Crowe, early retirement was offered in 1975-76 to alleviate a specific financial need and the option may not be offered in the future. Those eligible in 1976 were teachers who had 15 years of service to the district or 10 years with Jacksonville and a total of 25 years teaching service. Teachers had to be at least age 55 to qualify. Those aged 50 to 54 could qualify if their base salary was more than $14,000.

Jacksonville teacher-consultants work a maximum of 20 days per year at a salary of 5% to 7.5% of their 1975-76 salary. As an example, Crowe says a person aged 60 who earned $15,000 in 1975-76 would earn $1,125 per year as a consultant for the five years prior to age 65 for a total of $5,625. Consultants can drop the plan at any time.

In both districts, early retirement saves money as well as avoiding layoffs. Because teacher salaries are based in part on experience, the older teachers are paid higher salaries than the younger ones. Crowe said Jacksonville teachers with many years service earn from $100 to $800 above the base salary in longevity pay.

Early retirement in both districts is voluntary and might not be of benefit to the person whose present pension level is fairly modest. Crowe emphasizes that Jacksonville has not tried to counsel its teachers on the advisability of early retirement. "The decision must be made by the individual," he says, "in relation to the personal financial position, the relationship to the state retirement system and the future activity which is desired. The voluntary early retirement plan does provide an attractive alternative for some employes."

Part-Time Employment

Part-time employment, like early retirement, is only open to San Francisco teachers aged 55 and older. According to *Educators School Business Report*, teachers who choose Plan B work half-time but are credited with full-time service for retirement purposes. The employe pays all of the retirement contribution. Teachers may continue to work part-time for 10 years or until age 65, and may switch to Plan A (early retirement) at any time they qualify.

As an example, the magazine describes a teacher who has worked 10 years with the district by age 55, and who then works half-time for five years until age 60. The teacher is credited with 15 years full-time service and is eligible to serve five years as a consultant for $200 per day in addition to the pension.

The San Francisco job sharing option, known as Plan C, is open to all permanent employes, regardless of age or number of years with the district. According to the magazine, it is intended for teachers who wish to continue their studies or other activities. Partnership teaching – the official name for Plan C – is a variant of team teaching. The partners should work together on all aspects of their joint teaching position – including planning, curriculum innovation, assessment and contacts with pupils and parents. Such partnerships must be planned with and approved by the school site administrator. The pairings should match complimentary skills, the magazine notes, such as strength in curriculum, pairing an experienced with an inexperienced teacher or pairing a specialist with a generalist. The main elements necessary to ensure success, the magazine concludes, are good communication, compatibility and complimentary teaching styles.

Chapter 3.

Building Use: New Options For Old Spaces

The complex forces of declining birth rates and family mobility are creating surplus space in some school districts and overcrowded conditions in others. In districts which serve expanding suburban areas *and* older neighborhoods, both problems can occur simultaneously.

Both underuse and overcrowding create a dollar drain. In older districts, half-filled schools are inefficient from both building use and staffing standpoints. The low enrollment schools are generally older buildings which may be expensive to heat and maintain. The drain in overcrowded districts lies in the spiraling cost of new construction, which in some areas has been increasing at the rate of one percent a month.

Whether a district is losing students or bulging at the seams, the challenge is to make more efficient use of space. For the district with surplus space, the answer may be rental or sale of surplus buildings or the shared use of buildings with community agencies. Some overcrowded districts avoid new construction by extending the school day or school year, while others have expanded at lower cost by remodeling old hotels or other buildings. The district which has no choice but new construction can mitigate the budget strain through the use of cost-saving construction techniques.

Multiple Use or Recycled Schools

When faced with empty classrooms or excess buildings, most schools opt, as a first choice, to use the space for educational purposes.

In research for the study entitled *Fewer Pupils/ Surplus Space,* Educational Facilities Laboratories (EFL) interviewed administrators from 100 school districts in 25 states on the alternatives they have used with surplus schools. The first option chosen by a majority of the superintendents was to use the space for enrichment programs – such as art or special education – that had been crowded out in the past.

Some districts have started new programs that are at least partially self-sustaining. The Arlington, Va., public schools set up Montessori programs at four special learning centers where parents pay fees on a sliding scale. The study also describes a "pay-as-you're-able" program operated in a Hayward, Calif., elementary school for the children of working parents. California schools are allowed to operate children's centers as a franchise from the state. The state education department pays half the funds and parents pay the balance.

The South Holland, Ill., school district, in response to the *Education U.S.A.* cost-cutting survey, reports realizing a savings from renting two unneeded schools to special education cooperatives. The district receives rental income and the cooperatives have the use of suitable space designed for educational purposes.

Surplus schools can also be excellent locations to conduct federally funded projects. According to the EFL study, the Pontiac, Mich., schools are using a small elementary school to house a curriculum development project and a career education model.

Once the district and the community educational needs have been satisfied, school boards usually turn to local community agencies as possible tenants. A partnership with the city parks and recreation program is a natural: both the schools and the city are tax supported and thus serve the same constituency. The schools' locations in residential neighborhoods make them well-suited as neighborhood recreation centers.

According to city planner Judith N. Getzels of San Diego, writing in *Planning* magazine, state support for joint occupancy of schools is "coming into favor. California law expressly permits community use of school property for certain purposes," she writes. In 1971, "Minnesota passed the Community School Law, which offers financial

assistance to districts adopting expanded community use of schools." She suggests that community services located in schools be pedestrian-oriented, such as hot lunch programs for the elderly, health clinics, day care centers and community meeting rooms.

The EFL survey of districts who offer space to community agencies showed nearly an even split on the issue of whether or not to charge the agencies a fee. In the words of one superintendent, "As long as the school system is out from under the maintenance and operating costs, (the board's) philosophy has been to help the community with whatever means at hand. But," he cautions, "be darn sure you *are* serving the community in case a taxpayer complains."

Selling Schools

If no worthy community agency presents itself as a prospective tenant, the district may find itself with a building to sell. According to the EFL study, the Jackson, Miss., schools, when faced with such a situation, discovered colleges can be pretty good customers. The U. of Mississippi Medical School is renting half a building for a community health center and plans to establish a prenatal program there. The Hinds County Junior College near Jackson plans to buy an elementary building for a vocational education extension. Virginia Polytechnic Institute wants a local school building for a home economics vocational division.

School districts struggling with rapidly declining enrollments should consider the experience of Salt Lake City which, according to EFL, was forced to close 20 schools in eight years because of a 35% enrollment drop. The district sold four schools to private companies for office space, two to churches and one site was bought by a motel chain. The Salt Lake City schools are leasing one building for a cultural center for minority groups and a private school has rented another building. Three other schools have been rezoned for commercial use, and the remaining buildings house special education, Head Start, and adult and community education programs.

One of the most imaginative reuses of an old school building exists in Gloucester, Mass., where the Central Grammar School now serves as housing for the elderly. *Planning* magazine reports that the stately school building, which is conveniently situated next door to Gloucester City Hall, contains 80 apartments. "Only a few blocks away from the Central Grammar Apartments is the site of another former elementary school, which was demolished to make way for the construction of housing for the elderly in a completely new building," writes Getzels. "Not only does the converted building provide more distinctive and spacious apartments than the new building, but both the costs and the time involved in the conversion were far less." The success of the Gloucester project has sparked a similar effort in nearby Needham, Mass.

Successful recyclings are not limited to elementary schools. Getzels reports that DeWitt High School in Ithaca, N.Y., has been successfully converted to a complex that contains shops, offices and 49 apartments. "The old school library has become an elegant 1,500 square foot unit with three bedrooms and two baths," she writes.

A recycling that combines economical reuse with historical preservation is located in downtown Dallas. According to Getzels, SEDCO, Inc., an international drilling and pipeline firm, bought Cumberland School, an 1888 Victorian landmark, and "meticulously restored" it as offices for their corporate headquarters.

Legal Requirements For Recycling

Legal and fiscal requirements for sale or lease of property vary from state to state and district to district, according to EFL. About the only statute that governs all schools is a requirement that they *not* sell or lease to agencies that discriminate. While school boards usually make the decision to sell, Iowa requires a referendum for *any* sale or for lease to a nongovernment agency.

"The general rule for sales," says EFL, "seems to be sealed bids or public auction. Illinois specifies only public auction." Property may sell to the highest bidder or schools may set a minimum and reject any bids below it. In most districts, a public appraiser, usually from the city property office, sets the bottom figure.

California requires a public auction if a private organization is involved, EFL continues, but property may be sold directly to a municipal agency. The law is strict for any school buildings that have outstanding construction loans. Proceeds from the sale must be applied to these loans if any indebtedness remains on the building being sold. The proceeds must also be applied if any indebtedness remains on a capital spending program involving several schools, if the building being sold was part of the capital program.

Lease-Back Arrangements

Districts which belong to regional service agencies should consider leasing their excess classrooms and surplus buildings for program or administrative use. These agencies exist to provide to member districts a service that would be too expensive for a single district to administer. Such cooperative agencies are often forbidden by law from constructing their own facilities. And, if they must lease somewhere, why not in one of the schools they are serving?

The EFL study describes a successful lease-back arrangement between the Nassau (N.Y.) Board of Cooperative Educational Services (BOCES) and East Meadows School District. BOCES needed administrative offices and East Meadows had a surplus elementary school. BOCES agreed to lease the school for five years (the maximum allowed by law) for $250,000 and to add $500,000 worth of renovations. BOCES also agreed to return the building to the district in a condition usable as a classroom building. "The best commercial price for the same amount of space would have been $325,000," notes EFL. "BOCES figures that, including renovations, it will break even in five years; for the second five years (the lease is renewable), it will be substantially ahead. Meanwhile, the community has a $250,000 a year income."

Computerized Room Scheduling

The overcrowded district can postpone or even avoid new construction by making more efficient use of the space it already has. While some efficiencies may be gained through remodeling, the simplest solution may lie in more efficient scheduling of rooms. EFL estimates that a typical high school uses an average of 80% of their rooms at one time. In a given room, only 80% of the seats are filled, resulting in an overall utilization of only 64%. At the high school level, manual scheduling of students, teachers and subjects is complex, time-consuming and prone to error. The job requires administrative decisions for much of the process, so it cannot be relegated to a clerk. Busy principals and other building administrators often cannot afford the time required to work out the optimum space utilization.

Schools that let a computer do their scheduling find that the fast-moving machine can test a greater variety of options, resulting in a schedule that best serves the curriculum needs while providing for maximum space utilization. At least three computer course scheduling programs are presently commercially available: GASP (Generalized Academic Simulation Program), S^4 (Stanford School Scheduling System) and CLASS (Class Load and Student Scheduling).

The GASP program was used by St. Louis County, Mo., to simulate the classroom needs of a proposed junior college. The simulation revealed that 22 planned rooms were unnecessary and that the remaining rooms would have 85% room usage with 89% occupancy.

Schools can also increase their student capacity by extending the school day by one or two periods and staggering the starting times of the students. Those schools which feed all pupils at the same time could increase classroom utilization by staggering lunch periods.

Improved Needs Forecasting

Enrollment projections that lack precision and the absence of an overall long-range master plan will sooner or later hurt all districts. If enrollment projections are too high, the problem will be surplus space. If the projections are too low, overcrowding will result. In the *Economies in Education* study, educational consultants Cresap, McCormick and Paget analyzed schools built recently in New York state and discovered the square footage allowed per pupil varied up to 50% for elementary schools and even more for high schools. "Schools in poorer districts tended to be underbuilt in relation to need and they were overbuilt in richer districts," they said. The consultants estimate the average school could be built with 10% less area without sacrificing educational quality.

Accurate enrollment projections can be vital to a district's budget if its income is based on average daily attendance. Also, the administrator planning to close and sell a school should be certain that enrollment declines in the area are permanent and not a decade-long fluctuation. If the district finds itself needing extra space at some future date, it will have undergone the trauma of a school closing unnecessarily and will be faced with a new construction burden that could have been avoided.

Future enrollment, according to EFL's *Fewer Pupils/Surplus Space*, is influenced by family mobility rates, birth rates, the number of women of child-bearing age in the area, the density of dwelling units and a host of other complicated

Planning Facilities

Specific Planning Considerations

Listed below are several means which can be employed by the designer to reduce building costs.

1. Multi-story planning (within limits) can produce savings unless land is relatively inexpensive and building codes give significant cost advantage to one-story construction.

2. Both the campus and the compact plans for arranging facilities should be analyzed for potential savings in construction. Where land costs are reasonable, codes tend to favor building dispersal. Also, educational programs may be strengthened by decentralized facilities. Otherwise, compact plans may tend to be more economical.

3. Construction savings can be realized by keeping exterior perimeter walls (which are an expensive building element) to a minimum. It only follows that if the least exterior wall area is used to enclose the largest possible floor area, construction dollars can be saved. If, however, low perimeter-to-floor area ratios require air conditioning or climatic controls that otherwise would not be included, potential savings might be lost.

4. Modular planning – the use of repetitive units of space based on a common set of dimensions – can provide potential savings. Such planning permits repetitive use of structural elements, building components and materials, and furniture and casework. It can also reduce opportunities for errors in estimating by the contractor. By making initial job layout, inspection of construction and checking of shop drawings simpler and less liable to error, modular planning can introduce economies during construction. Modular units should be utilized cautiously so that the environment does not suffer aesthetically.

5. The planning goals should be to provide an efficient arrangement of spaces which keeps the ratio of gross to net square footage as low as possible. Unnecessary corridors, circulation space, lobby areas, duct space and other

nonproductive areas might be reduced without impairing the educational efficiency of the structure.

6. Economies can be realized by avoiding walls which have low insulative values or which impose special problems in terms of providing and controlling natural light, heating, ventilation and air-conditioning. Similarly, careful selection of exterior wall materials can dramatically reduce costs. Partitioning systems for subdividing interior space should be explored. Of course, unnecessary partitions should be avoided.

7. Off-site assembly, repetitive units, simplified design, use of inexpensive yet durable materials, and installation of casework only where necessary can introduce additional savings. (Casework can easily amount to 5 to 7 percent of the total construction cost.)

8. Specifying building and material components that are repetitive in dimension can reduce on-the-job cutting and fitting and provide a very significant avenue for construction economies.

9. Selection of materials, finishes and equipment with proven characteristics of low, long-term maintenance costs will provide an economical building if the usable life of the building is considered.

10. Without any major price differential, selection of a structural system which will permit quick closing in of the job so that work can continue out of the weather can offer bidding advantages.

11. Insulation must be carefully designed and specified to avoid under-insulating or to avoid an imbalance of insulation between exterior walls, basement and roof.

12. As a further consideration in long-term economy, materials should be checked in terms of effect on insurance rates. For instance, while building codes may permit the use of laminated wood beams, insurance considerations may render them more economical in one area than in another.

factors. School districts developing sophisticated enrollment predictions should analyze such factors in their community and apply the information by census tract to pinpoint, by individual school, the enrollment trends of the district.

Found Space

The district experiencing growing pains can expand its facilities economically through the use of "found" space – leasing nearby warehouses, offices or public buildings and converting them to classrooms. The Council of Educational Facility Planners, Int., notes that the Chicago school district has successfully converted a former candy factory, a grocery warehouse and a telephone building to school uses. In downtown Cleveland, a former paper company office and warehouse building serves as a supplemental educational center for the school district.

In New York City, "found" space is a water testing laboratory located near an overcrowded school that was converted to an early childhood center. According to *Phi Delta Kappan*, the conversion was economical, met the wishes of the neighborhood to preserve a sound but unused building and met the needs of school staff who wanted to add the e rly childhood program.

Found space to the New Yorkers also meant sprucing up outdated but usable schools instead of building new ones. The magazine says 1,000 schools more than 30 years of age were modernized, from tearing down internal walls in one building to painting one "dingy, monochromatic building" a series of 72 colors. In other buildings, dark courtyards have been made into lively play areas.

The Denver, Colo., schools are using a variation of "found" space to provide elementary schools for students where the district could not afford to construct new buildings. The schools are located in Montbello, a geographically isolated, new, planned community that contains residential, industrial and commercial neighborhoods.

According to Robert Hedley, Denver's director of facility planning, when families began moving into Montbello eight years ago, the district was not financially able to build a new school. Instead, it leased a single family home for the kindergarten program. The area grew quickly and an elementary school was soon needed. The original Montbello developer agreed to build a "shell" which could be used as an apartment building, and the school district was allowed to design the interior for classroom use. The basement houses the play and eating areas and the other floors are classrooms. The school is still being leased, but Hedley says the building can some day be converted to apartments by moving interior walls and installing different plumbing.

When a second elementary was needed, Hedley said the shells of three adjacent office buildings were leased in the industrial area of the community. Again, the interiors were finished to the school district's specifications. The classrooms are divided by movable partitions, and one building houses an auditorium, music area and a lunchroom that doubles as a gym. Hedley says both schools are temporary solutions because they lack full-service cafeterias and gymnasiums. He estimates that the schools did not actually save the district money, because space was available for the children in other schools in the district. The leased schools are desirable, however, because they do avoid the necessity of busing young Montbello pupils long distance on an interstate highway. The neighborhood schools also provide a measure of stability to an integrated community that is interested in attracting new residents.

The Louisville, Ky., school district embraced the principle of "found" space in a big way and contributed to the city's urban revitalization by purchasing a downtown office-hotel complex. According to *Schoolhouse*, the EFL newsletter, the district's administrative offices are located in the 15-story Brown Hotel and an alternative school is housed in the adjacent 10-story office building. The school board paid $3 million for the complex and spent another $2 million on remodeling. *Schoolhouse* calculates that the initial purchase price amounts to $8 a square foot, compared to "estimates of at least $25 per square foot for a new structure of comparable size."

The buildings will cost about $350,000 annually for maintenance and operations, but they will also generate $200,000 a year in rental fees, the newsletter says, from day or evening use of the public rooms and from regular tenants. The tenants include an apothecary, a savings and loan office, a state labor office, the Louisville Symphony offices and a theater. Two floors are still operated as a hotel for beginning teachers, interns, student teachers, consultants and others working with the board of education.

The J. Graham Brown School in Louisville serves 500 third through twelfth graders in an open space atmosphere. The district feared at first that city

codes would not permit use of the office building, the EFL newsletter reports. The building and grounds department worked closely with the fire marshal and added fire doors, an exit stair, heat sensors, a modern alarm system and improved elevators. The building has been vacated in four mintues in a fire drill.

Intergovernmental Cooperation

Just as school-community cooperation can be a boon to schools with declining enrollments, the school system in an expanding area stands to gain from a close working relationship with area government officials. That relationship begins with a thorough understanding on the part of school boards and elected officials of the role annexation and zoning policies can play in determining the financial health of the school district.

It is often the planning commission's annexation of a major new housing development or their rezoning to permit multiunit housing that creates enrollment pressures on the schools. If at the same time the commission gives developers the go-ahead it also requests a donation of cash or land in exchange, the impact of rapid growth can be minimized for the district.

In Aurora, Colo., a city which has nearly doubled in population since 1970, developers desiring annexation are required to deed a certain portion of their land for public use, in exchange for the right to enjoy city services. Some of the donated land becomes city parks; other land becomes the property of the school district. Still other tracts are developed jointly with the schools and the park sharing the same ground. Maintenance costs are also shared.

In Schaumburg, Ill., a rapidly growing, middle-income Chicago suburb, similar arrangements have brought the Schaumburg schools more than $3 million in land, buildings and cash over the past 22 years. The *American School Board Journal* reports that developer contributions in Schaumburg are voluntary, but they are not difficult to obtain because the developers are anxious to maintain good will in the community. According to the *Journal*, the Schaumburg school board has developed the following guidelines for future builder contributions:

- One acre of land for each 100 children as part thereof anticipated from the development. Donated land should contain a minimum of three buildable acres as determined by soil testing procedures agreeable with the school board. If the develope. is anticipated to have fewer than 400 children (i.e., fewer than five acres requested) then the cash equivalent of the land at the current market rate is requested.
- A cash donation of $100 per bedroom for each unit having two or more bedrooms.

To maintain continuing communication and ensure that the school board is forewarned of prospective growth, a member of the Schaumburg school board serves on the municipal planning commission. Similarly, a former Aurora, Colo., school district employe serves on the city planning and zoning commission. The planning commission liaison can also save costs by ensuring that future school sites are served by utilities and access roads.

Sharing School Costs

When a new school building must be built, substantial savings can be gained by selling the "air rights" above or below the school to a profit-making, commercial entity. According to *Economies in Education*, an estimated 10% of New York City's new schools, either planned or under construction, will be financed 100% by sharing their sites with apartments or office buildings built in the "air rights" over the school.

The New York City Education Construction Fund (ECF), a public authority, was created to buy the land, construct the school buildings, and arrange for a developer to build in the air rights. The developer pays ECF both for the air rights and for the "tax equivalency" the enterprise would be paying if the structure were not built over school property. ECF uses its income to retire its bonds. As long as ECF income exceeds its debt service, the schools can be considered "free" to New York City. As appealing as this sounds, however, the study concludes that air rights leasing is difficult to implement "and the extent to which it can be expanded in New York City and adopted in other large cities is clouded with uncertainty."

The Dade County (Fla.) Schools – in a reverse approach to air rights construction – built an elementary school under Interstate Highway 95 in Miami in 1972. Miami's supervisor of school site planning explains that condemnation of land sufficient for the building would have cost $2 million

and displaced 150 families. Instead, the school board will lease six acres from the state for $1 a year. The school is air conditioned and sound proofed and the highway is heavily railed above the school to prevent accidents.

Joint use of facilities through a regional service agency can also reduce costs. The Seattle, Wash., Educational Service District acquired meeting and audiovisual facilities at low cost, which they lease to state and local agencies at much lower prices than the school districts had been paying for comparable space in hotels.

The district that uses temporary classrooms for extra space should consider turning production of the buildings over to its maintenance department. According to *Nation's Schools Report*, Jefferson County (Colo.) Schools saved $400,000 by this method. The district hired 60 temporary employes to build the 106 classrooms, bought materials at a discount and constructed the 24- by 40-foot buildings on an assembly line basis, eventually reaching peak production of five buildings a week.

Paul W. Carver, the district's director of maintenance, says the buildings cost $8.50 per square foot for those without bathrooms and $10.50 for those with bathrooms. The savings were so dramatic the district plans to use the do-it-yourself technique to construct 94 more movable classrooms this year, eight of which will be joined together to form a new junior high school.

Economies in New Construction

The search to cut construction costs begins long before the first board is nailed or the concrete is poured. It may begin years earlier with the careful determination of optimum sites for future buildings. Site considerations include both the site's relationship to other schools in the district and its ability to serve educational needs in terms of available space and topography.

Subsoil conditions of a site can affect building costs by requiring more expensive foundations and preparations for drainage, notes the Council of Educational Facility Planners, Int., in *Guide for Planning Educational Facilities*. Severe topography may also require costly site preparation; the size of the property can affect the shape of the building; and the existence of natural vegetation can ease landscaping costs. The facilities guide adds that environmental factors, such as noise from a nearby factory or a jet aircraft approach, can negate savings achieved through purchase of an inexpensive site by requiring "exceptional acoustical barriers to combat noise."

Educational Specifications

Before a district can determine the best architectural style to suit its needs, educational specifications should be developed that conform to the educational goals selected by the school board. As defined by the facilities planning guide, these specifications "seek to define spatial, equipment and special environmental needs, all of which can be assigned a dollar value." The future users of the building must be involved in the development of the specifications, the guide adds, in order to avoid including space and items that are unusable and unwanted.

By including the building users and school district officials in the planning process, the guide continues, educational specifications can save false starts in building design by developing a consensus about facility needs before the architectural planning begins.

Architect Selection

Superintendents responding to the *Education U.S.A.* cost-cutting survey stressed the importance that careful selection of the architect can play in reducing costs. Bastrop, Tex., Supt. C.H. Evans recommends researching the types of construction available, then selecting the architect based on his/her experience and the types of construction proposed. Bypassing the planning process "can create a false economy and result in far greater costs in maintenance and replacement," Evans explains.

Once a district finds a building design that works, standardize it and stay away from frills, adds Mooreland, Okla., Supt. Rex Enterline. For Mooreland, the design that works is a thin-shelled, prestressed concrete building which resembles a barrel. "It doesn't have the aesthetic appeal of other buildings," says Enterline, "because it does not have nearly as much glass." He estimates the ratio of concrete to glass as 6:1. The concrete structure has very low insurance rates, he says, because it is "almost storm-proof." The building has a wood-fiber coating that is "practically fireproof," and the insulating effect of so much concrete keeps the building warm in winter and cool in summer. (Even the roof is concrete.)

Enterline said the district's newest elementary school cost $27 per square foot while the average construction cost for the area is $33 a square foot.

The rapidly growing Aurora, Colo., school district is trying to trim the costs of school construction by standardizing architectural and engineering specifications for district schools. With the aid of two architectural consultants, the district designed plans which are currently being used to construct two elementary schools. The plans call for standard sizes for classrooms and kitchens and include some standardized materials. The theory, according to Supt. John Stuart, is not that the school is limited to one design, but that the *same concepts* – such as open or closed space or the types of facilities for art classes – are used in each school.

One unusual aspect of the Aurora approach is that the district owns the plans and may reuse them as is, or turn them over to a new architect for modification. Stuart says the architect's fee to design a new building is usually 6% or 7% of the construction cost. Using the same plans will reduce the fee to 3% or less, and modifying the plans costs the district something more than 3% but less than 6%. Because the first two elementary schools using the "prototype" plans are still being built, it is too early to judge the merits of this approach. Stuart cautions, however, that standardized specifications would only benefit a rapidly growing district. Educational concepts and building materials change, he explains, so the specifications might be out of date before a slowly expanding district would be able to reuse them.

Construction Bids

After the architectural drawings are complete, the school district should review them in detail before they are put out for bids, reports one Illinois superintendent, because "this eliminates errors that cost money from second thoughts on design." The drawings and specifications should be as complete as possible, advises the Wichita, Kan., superintendent. "The less the bidders have to guess about what is desired in the building, the lower the bid prices will be."

Timing can also affect bid prices, notes the facilities planning guide. Construction is a cyclic business, with activity peaking in the spring and summer and slowing during the fall and winter. Districts that can schedule bids for a period when construction volume is low will probably receive better prices. The guide also explains that giving the contractors sufficient time to prepare estimates minimizes the possibility of errors and allows them the opportunity to receive bids from their subcontractors.

Once construction starts, change orders create delays that are expensive in terms of both cost and inconvenience. The facilities guide recommends designating a single spokesman within the school, the architectural firm and the construction firm "so that questions can be resolved in a prescribed, straight-forward manner without conflicting decisions and opinions."

Systems Building

To minimize the amount of construction-site labor and customizing needed in a school, many districts are using the systems or modular building approach in which mass-produced items with common dimensions are used as building components. When several districts in a confined area agree on the same specifications for building components, volume purchasing can increase savings further.

In *A Systems Approach for Massachusetts Schools,* Paul Abramson notes that readily available, coordinated building components now exist for heating, ventilating and air conditioning equipment, integrated ceilings, electrical equipment and interior partitions. "Together," the study continues, "these components can account for 40% to 50% of the costs of new schools. Further systems development could encompass as much as 75% of the school construction cost."

Fast-Track Construction

Spawned by an era of steadily increasing construction costs, "fast-track" construction operates on the principle that time is money. The architectural planning process for a large building is completed in several phases. Therefore, the theory goes, if construction is also phased, the actual construction can begin before the design is completed. Construction can be split into two, three or four phases, with one bid for footings and foundations, another for exterior walls and roof, a third for interior structures and a fourth for mechanical equipment work. EFL estimates that fast-tracking can reduce construction time 25% and more.

Florida school districts began building schools with both modular components and a fast-track time schedule in 1967. A study conducted several

years later by the Florida Dept. of Education determined that conventional schools constructed that year cost $19.16 per square foot, while the fast-track/systems built schools cost $16.08 or 16% less. State education officials also claim the systems approach provided superior schools.

Fast-tracking is not universally popular, however. Robert Hedley, director of facility planning for the Denver public schools, says phased construction can cause headaches if a different contractor handles the separate phases and there is some dispute over the work. Hedley says the Denver school board is also "leery" of fast-tracking because the total cost of the building is not known until the last bid comes in, and by then, if the project is over budget, it's too late to make substantive changes. Sometimes, he adds, the bids are more competitive on a larger job because the large construction companies do not bother with small projects.

A study conducted in 1970 by a task force of Massachusetts businessmen concluded that building costs can also be reduced through using steel framing as opposed to reinforced concrete, by eliminating unneeded load-bearing walls (a savings of up to $20 per linear foot of wall) and by installing strip lighting fixtures above "egg-crate" ceiling panels. The study, as described in *School Management* magazine, also recommends that schools be designed with provisions for future building connections, that window expanses be reduced and that sun glare shielding be provided. The use of carpeting, tile, terrazzo and seamless epoxy resin materials for floor coverings is also suggested.

Building Maintenance

Efficient building maintenance begins with a well-organized plan for each building that spells out cleaning tasks and assigns specific responsibilities to avoid duplication and confusion. Each building should have its own maintenance manual that specifies procedures and standards for cleaning.

The number of custodians needed per building can be determined by applying a formula to several variables. The New York State Education Dept. developed such a formula. It relates custodial needs to building area, pupil enrollment and number of teaching stations. New York districts that used the formula discovered wide variations in the number of custodians employed in relation to need. Some districts were able to reduce custodial costs up to 15%.

Custodial efficiency can also be increased through better supervision. One medium-sized district reduced custodial costs 10% after a complete review of operations and staffing patterns. Effectiveness – as measured by the level of cleanliness – was increased "substantially," the article said, by improving supervision, standardizing supplies and work methods, developing formal, detailed work schedules and instituting a preventive maintenance program. The review also revealed the need to redistribute manpower among the district's schools.

The Dade County, Fla., school system uses a sophisticated maintenance management program to control costs. Computer-based programs have been developed to control the flow of work orders, to schedule projects methodically and to project staff needs. The district continually reevaluates its procedures through maintenance project committees composed of industrial engineers and systems and cost analysts. The committee studied the district's six-year cycle painting program which had been contracted to outside painters for $750,000. They determined that the work could be done more economically by the district's own staff. The committee also analyzed the amount of time maintenance employes spent traveling from building to building. A recommendation was made to build two decentralized maintenance depots. The depots cost $120,000 each but increased effective work time by 20%.

In allocating work responsibilities, a district may want to include the immediate grounds around the school as part of the building custodian's responsibility, suggests the *Encyclopedia of Cost-Cutting Ideas for Schools* (see page 37). "This assignment will serve to eliminate bickering over which job is whose," the booklet says, "will increase custodial pride in the building for its total appearance and will permit you to redirect the efforts of grounds personnel."

Traffic wear on school lawns can be greatly reduced, it suggests, by delaying installation of sidewalks one year at a new school to allow natural paths to develop. Landscaping and sidewalks can then be designed to *accommodate* natural walkways, rather than to compete with them.

Labor and Equipment-Saving Tips for School Maintenance

- The life of a rug can be prolonged by occasionally rotating its position 180 degrees. This equalizes wear over the entire surface, rather than confining it to limited traffic lanes.
- Large pieces of broken glass can be cut to replace small panes.
- Window screens with small holes can be repaired by using soft wire to darn the opening. Larger holes can be repaired with a screen patch. Cross wires on all four sides of the patch should be removed so it can be easily secured to the screen being repaired.
- Floor area within 10 inches of the baseboard receives little foot traffic. Custodians can skip this area until every third or fourth rewaxing. This slows the rate of wax consumption and saves the labor of stripping unnecessary wax buildup.
- Glass door panels which are broken repeatedly should be replaced in the lower half of the door with colorful, opaque, aluminum-clad panels.
- Custodians can prolong the life of vacuum cleaner hoses by reversing them periodically to equalize wear.
- Terrazzo floors do not need to be waxed. Sealing the surface and cleaning occasionally with neutral cleaner gives excellent results.
- Wooden ladders and other wooden equipment should be stored in reasonably dry locations. Excess heat may cause the wood to become dry and brittle, and extreme moisture may cause swelling or rotting.

Encyclopedia of Cost-Cutting Ideas For Schools

Chapter 4.

Organization: Conservation Through New Combinations

Among the possible answers being explored to curb the rising costs of education are new combinations for school districts, either through consolidation of small districts or through rearrangement of the school calendar. All of the options are based, at least in part, on the goal of more efficient use of people or facilities. Included in the combinations under scrutiny are consolidation of schools and programs, four-day school weeks and year-round schools.

The consolidation of rural schools has been underway in the United States since 1930, resulting in the elimination of more than 112,000 school districts. The consolidations were based on the assumption that better education could be delivered more economically to larger groups of students. Surprisingly, however, a recently released study by the National Institute of Education (NIE) on rural consolidation reaches the opposite conclusion.

According to *Education U.S.A.*, the study discovered that when certain "diseconomies" – such as increased transportation costs – are included in the overall formula, "the economies from consolidation tend to decrease markedly or vanish altogether." Increasing fuel costs affect not only pupil transportation, but the distribution costs of materials purchased centrally for delivery to widely scattered schools. The study concluded that administrative and distribution costs may cancel out any savings from bulk purchases. Administrative efficiency is also a myth, the NIE study says. Consolidation just means that each administrator is responsible for a larger number of students.

The study also discounts the theory that consolidation leads to greater equality of opportunity and improved education for the students. "Despite reorganization," writes *Education U.S.A.*, "great inequities remain between districts in wealth, tax rate and expenditures – regardless of size." The standard of 100 students as a minimum number for a senior class – widely advanced in the 1950s – was also debunked in the study. The NIE research study found either no correlation or sometimes a negative one between school size and pupil achievement. It found that students from small schools participate more in activities that support the academic program and there is more quality in their involvement.

Contrary to the trend in districts experiencing declining enrollments, whose first response is to close small schools as inefficient, the NIE researchers conclude that small schools deserve another chance. More research should be directed at maintaining and improving small schools, they say. Alternatives to closure, such as regionalizing expensive programs, should be explored. But any research done to demonstrate the value of regionalization "should be scrutinized very carefully," they add. (Copies of the study, *Economy, Efficiency, and Equality: The Myths of Rural School and District Consolidation,* are available free from the NIE School Finance and Management Division, HEW, Washington, D.C. 20208.)

Library Merger

While consolidation of widely separated rural districts might not be cost-effective, consolidation of similar school and city services in small towns can have benefits.

A small, North Texas community of 3,600 residents found it could increase both efficiency and services by combining the school and community libraries. The project, begun in Olney, Tex., in 1971, has combined operations of the public library and the three school libraries under the direction of a library coordinator, whose salary is paid jointly by the city council and the board of education.

Operations are more efficient because coordination of the four libraries results in minimum duplication of books. Services have increased be-

cause the merger permits the school libraries to remain open in the summer and has opened them to use by the community. Olney ultimately hopes to build a new facility to house the public library, the children's library and the high school and junior high libraries under one roof. In the meantime, a central catalogue exists at the high school library with the locations of each book stamped on the back of the catalogue card.

According to *School-Community Library: The Olney Project,* the first step taken towards merger was to create a combined library board which directs operations independent of the city council and the board of education. The library coordinator's job was changed from 9 months to 12 months, a half-time aide was added to the high school library and the grade school aide's job at the children's library was increased from half-time to full-time. Costs of all salaries are shared equally.

The library merger generated considerable interest in the community and the Olney Working Library Society (OWLS) was formed. Volunteers staff the library on Saturday, give story hours at the children's library and provide library services to rest homes and the senior citizens recreation center. The auxiliary group plans to develop an oral history collection and to gather materials on history of the local area. Members of the community also responded generously with back issues of periodicals to expand the library's collection.

In addition to the regular purchasing program, the library's collection is supplemented through a rental plan. Through the plan, the library rents 100 best sellers per year (approximately eight a month) which are, in turn, rented to patrons. At the end of each year, the library has the option of purchasing any of the books at 25% of cost. According to the handbook, the collection, which includes both the "rented" books and other popular new books purchased by the library, "serves the double purpose of defraying library expenses and providing an extra incentive to each patron to return books as soon as possible."

Further savings are achieved by purchasing paperback books for the high school. Not only do the paperback books enable the library to provide more materials quickly, but "most students seem to prefer the paperback edition, even if the hardback is available," the handbook notes.

One other advantage of merger is the flexibility it gives the school to shift collections where they are needed. At the time the library handbook was written, the junior high science students were writing ecology reports. A search was made of all four libraries for materials relating to ecology and other environmental topics and the resulting collection was loaned temporarily to the junior high library. The children's library, which merged public library books with collections from the elementary classrooms, was established in a vacant band hall. Mobiles and oversized alphabet letters that decorate the walls were made by elementary art classes. Because the teachers like to have access to books in their classrooms, book carts were purchased and the selections are rotated from the carts to the library to give everyone access to all the books.

A suburban Philadelphia school district is saving $10,000 a year on custodial care and $10,000 on librarian salaries because the children's library and public library are operated out of an elementary school. The combined Bala School and Bala Cynwyd Library saved about $250,000 in construction costs. Fuel costs are also lower, since one building is used rather than two.

Four-Day Weeks

One of the educational trends of the 1970s has been a nationwide pattern of voter rejection of school construction bond issues. When faced with overcrowded schools and no money to expand, districts begin looking at new ways to accommodate more students in the same space. A traditional short-term solution has been to convert schools to double sessions – an unpopular choice for all concerned. One alternative to double sessions that has been tried in several states is the four-day school week. The school is open five days but each student attends only four days. Schedules are staggered to permit 20% more students to use the same space.

The Stillwater, Minn., public schools have found that the system costs no more to operate than the five-day week. Students attend school from 8 a.m. to 4 p.m. four days each week and have the option of taking extra studies through a fifth-day coordinator. Asst. Supt. Ken Pedersen says just under half of the students, or about 700-800 students, use the fifth-day coordinator and many others are involved in service projects in the community, like working in hospitals. "Others have found jobs," he says, "and a few have just stayed home and slept" on the fifth day.

Teacher reaction to the program has been mixed. In those areas that lend themselves to independent study – such as social studies and English – teachers are happy with the program.

In those areas where continuity or drill is necessary – such as science, math and instrumental music – instructors have not been happy, Pedersen says.

From the district's point of view, there has been "too much parent acceptance of the program. We still want to pass a bond issue," Pedersen says. "We have no data to prove it, but there is still a feeling that four days is not as good as five." Before the four-day week, the high school used flexible, modular scheduling which was popular but became impractical when space became tight. The district's plans include leasing a school in another district and returning to a five-day week. The sophomores will attend school in the leased building and the current high school will house the juniors and seniors.

Year-Round Schools

Contrary to popular belief, the year-round school is not a new phenomenon. According to ECS's *A Legislator's Guide to the Year-Round School*, sporadic attempts at 12-month schooling were attempted from 1904 through the 1930s. Large scale experimentation with the idea, however, did not develop until the mid-1960s – when rising enrollments and spiraling construction costs, coupled with voter defeat of bond issues, forced administrators to begin thinking of the school schedule in new terms.

By far the most popular version of year-round schooling is the 45-15 plan pioneered in 1968 by the Valley View Schools in Romeoville, Ill. Under this plan, students are divided into four tracks. Each track is in school for 45 days and on vacation 15 days and the school-vacation cycle is repeated four times. Except for commonly observed holidays, such as Christmas, students from three of the four tracks are in school year-round. Valley View Supt. James Gove says the 45-15 plan provides the district with one-third more school buildings without new construction.

Similar space economies are available through Concept 6, which is being used in Colorado Springs and Jefferson Co., Colo. Under Concept 6, students are divided into three tracks. Each track attends school for four learning periods and is on vacation for two periods. Unlike 45-15, in which students are entering and leaving the system every 15 days, the Concept 6 tracks begin and end each 43-day learning period at the same time. Like 45-15, Concept 6 frees one classroom for every two that are in use.

Operating Costs

Although there is fairly universal agreement that year-round schools reduce construction costs, opinion is mixed on whether year-round lowers operating costs. According to the ECS booklet, the Prince William Co. School District in Dale City, Va., initially reduced costs $109 per pupil in one of the four schools using a 45-15 plan.

Pallatine, Ill., however, investigated year-round schools and rejected the concept because it would have been more expensive. Similarly, the Roosevelt School District in Phoenix, Ariz., decided in early 1976 to reduce from seven to three the number of schools with year-round programs. According to Joseph Stocker of the Arizona Education Assn., Roosevelt began the 45-15 plan to provide more space when the district was overcrowded. Today, the district has declining enrollment and some families have complained that the system is inconvenient for planning vacations. "Year-round school has proved expensive," Stocker writes, "for a district that is barely able to keep afloat financially."

The Virginia Beach, Va., city public schools began a 45-15 plan in four of its elementary schools in 1973-74. A study comparing the costs of the four year-round schools to the traditional schools in the district was conducted for 1973-74 and costs were projected for another five years. The year-round schools cost approximately $8 less per pupil than the traditional schools, which the researchers concluded was "insignificant", given the variances of cost figures among the schools and the range of assumptions in the study. Instructional staff costs were $40 more per student and support staff (including administrators and custodians) costs were $40 less in the year-round schools. The higher instructional costs were due to wide variations in pupil-teacher ratios. "Better staffing and loading patterns would have yielded much greater savings," the study said.

Year-round schools, as expected, used space more efficiently than the traditional schools for a savings of $6 per pupil. Maintenance costs were calculated at a $2 savings per pupil, but this was discounted because, on the average, the four year-round schools were newer than the average of the other elementary schools in the study.

A computer simulation tested five-year cost projections based on 1) all elementary schools on a 45-15 calendar and 2) all elementary schools on a regular calendar. "A number of alternatives were tested under each," the study said, "but the 45-15

How to cut costs in your central office

What to do	How it works	How you'll save	The consequences
42. Tighten up on money management techniques.	All receipts are deposited in interest bearing accounts on the date received.	Interest income will go up.	Procedures for quickly identifying correct account for deposit must be developed — especially for some state and federal grants that have poor check identification notations.
43. Eliminate costly and unnecessary paper processing of small items.	You establish a quick order system where purchase orders are handled at school building level for all items under $25.	Fewer clerks will be needed; more time can be spent on purchasing larger items; costs of clerical help will go down; better cost quality relationship will result.	You may have to defend a few foolish decisions that may be made at the local school level.
44. Develop an effective, integrated budgetary and payroll control and statistical reporting system.	No longer will an extra teacher be put on the payroll (in excess of the budget) because someone forgot that the vacancy has been eliminated. Saving: $12,000.	Expenditures resulting from "gaps" in the control of budgetary units will go down.	A lot of development work and some costs required.
45. Use work sampling and work measurement techniques to establish standards for planning, measuring, and controlling clerical performance.	A study of work production shows that you don't need an extra clerk in purchasing; you need greater typing speed on purchase orders.	Productivity will go up, and perhaps you can avoid an increase or not fill a vacancy.	Opposition from clerical staff to standards.
46. Update organizational structure, and clarify responsibility and authority.	A poorly planned, worthless workshop is avoided because an administrator now knows he will be held accountable for its lack of results.	Manpower efficiency and control of costs will improve. Fewer costly bad decisions will result because "no one" was responsible.	Noses will go out of joint — especially those belonging to persons who had been directly responsible to the superintendent or other top administrator in the system.
47. Give each subunit in the school system a budget and hold respective administrators responsible for it.	You avoid buying equipment and materials you don't need.	Requisitions will be challenged more effectively at lower levels and stopped at a point where details are better known. You'll get more for your money.	More time spent in this area — especially at first; better use of resources if budget decisions are related to goals and objectives.
48. Make it clear that one key to the future of administrators is their ability to come up with specific suggestions for reducing costs, improving efficiency and productivity on a quarterly basis — in writing.	An administrator of the night school devises an evening building use schedule that saves you $5,000 a year.	Your administrators often know where to save, but you offer them no motivation for offering appropriate suggestions. Once you do so, you'll save.	Some administrators may be exceedingly uncomfortable in the new environment.
49. Substitute mechanized activities for those manual processes that are costing you money and efficiency.	You eliminate the need for a $7,000 clerk in the payroll department because the bank gives you all the records you need.	Fewer people will be needed to perform a given level of work; salary costs will go down.	Opposition from organized employe groups; bunkish charges that you are dehumanizing the schools.
50. Review and standardize salary and fringe benefit programs for all employes; eliminate costly exceptions.	You save a $10,000 contribution to Follow-Through by reducing aide salary schedule, which exceeds regular salary schedule.	Salary and benefit costs will go down. If you're making a general fund contribution to a federal program, you'll decrease need for the contribution (often policies set in federal funds projects become a part of the general operation, and increase costs to your local taxpayers).	Opposition from those employes adversely affected.

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alternative was found to yield significant savings only when certain necessary assumptions – such as required busing, keeping general attendance areas intact, and keeping all siblings in the same attendance cycle – were relaxed."

The Jefferson County (Colo.) Public Schools implemented a K-12 year-round program in 1974-75 for 16 schools in the 75,000-student district. A recent financial analysis by Price-Waterhouse & Co., concluded that average per-pupil costs were $26 less in the year-round (Concept 6) schools than in the 100 schools with traditional schedules. The overcrowded district has had three construction bond issues defeated in the last two years, and the board of education voted to expand Concept 6 to 15 more schools after receiving the analysis. By August 1977, one-third of the district's students will be on the year-round schedule.

In preparation for the board's vote, the district's research department prepared an educational feasibility study and contracted for a community attitude survey. William D. White, director of program development for the district, says the community survey reveals that acceptance of the program increased the second year (1975-76) among citizens, students and teachers. The concern over vacations was also less "after they had been through it once," he adds.

The feasibility study indicates there is an overall reduction of the drop-out rate in the district's year-round schools and that test scores in reading, mathematics and language arts are about the same for the two calendars. White says opinions are "very mixed" on the educational advisability of year-round education and he feels the research is too preliminary to reach any long-range conclusions.

Both the initial decision to try year-round schools in Jefferson County and the decision to expand them were based primarily on the need for more space, White explains. For districts considering year-round schooling, he advises that the decision requires some "compelling need," such as an acute shortage of space, before the year-round concept can be successfully adopted. Citizen involvement is crucial, he says, because it can become an emotional issue in the community. "It can't be an administrative decision and it's not a fad to be jumped on," White says. The local building administrator is the "key" to making it work, he adds. "Make sure the principal understands it so he/she can communicate it to staff and to the community."

White advises that citizens be involved in task forces that study the feasibility of year-round schools and that all the scheduling alternatives be explored to see which best fits the community. Issues which should be decided locally include: should year-round schools be implemented in K-13 or on a smaller scale; can students who don't want to participate attend another school; and should the year-round schools be given more money than the traditional schools.

(For abstracts of the community attitudes study and copies of the economic feasibility and the educational feasibility studies, write William D. White, director of program development, Jefferson County Public Schools, 1209 Quail St., Lakewood, Colo. 80215.)

The ECS study concluded that year-round programs can only be economical when there is mandatory assignment of students to tracks, which ensures equal distribution of pupils throughout the year. Schools that convert to a simple trimester or quarter system (counting summer school as a regular semester) require few curriculum changes. Extensive curriculum revision is required for most year-round plans, in which subjects are generally converted to nine-week minicourses. The educational advantage of the shorter curriculum units, however, is that students who fail a course may repeat it more quickly and lose less time catching up with their peers.

From her survey of existing research on the subject, ECS researcher Doris Ross has concluded that the only "major" saving of year-round schools is the avoiding of new construction. "You still have to pay for teachers, operations and supplies," she says, and many districts have the extra expense of air conditioning a school before it can be used in the summer.

On the nonfinancial aspects of year-round education, she concurs with White that the research covers too short a time period to make definitive conclusions. "I think there are some distinct societal and education advantages," Ross says of year-round schools, "but they have yet to be proven conclusively."

Chapter 5.

Purchasing: Good Sense Saves Dollars

The expense of supplies and equipment entails much more than just the purchase prices of commodities. To the unit price of goods must be added the administrative costs of ordering the items, the time spent by school staff developing specifications for the materials and the cost to maintain inventories. Both warehouse costs and finance charges have to be added if short-term borrowing is used. An inefficient system can add more subtle costs, such as the inconvenience a teacher suffers when supplies or textbooks do not arrive on schedule.

Slow payment procedures can also rob districts of valuable discounts. According to one district, most vendors offer a 2% discount for payment within 30 days. The National Audio-Visual Assn. (NAVA) reports in their pamphlet, *Are Educators Deadbeats?* that one district business officer saved enough money on discounts through prompt payment that he was able to hire "two badly needed secretaries." On the other hand, one big city school got "very bad publicity," NAVA said, when a newspaper reporter revealed that discounts running into five figures had been lost because of slow payment.

School district policies and procedures are usually the culprits in slow payment situations. A NAVA survey of its member dealers and of a cross section of school districts revealed that "it is not unusual for three and four months to elapse between the time merchandise is delivered to schools and payment is received for that merchandise." As a remedy, one major school district persuaded its board to discontinue the practice of approving invoices before a check is issued. "Under the new system," NAVA said, "the business office issues a check on its own initiative, within appropriate guidelines, and the board 'ratifies' the payment at its next regular meeting." In another district, the business office pays on invoice only, after checking by telephone to ensure that the merchandise has been received as ordered and is in good condition. This eliminates the time-consuming delay, NAVA said, involved in forwarding the receiving slips. Those slips are eventually matched with the invoice for verification.

In addition to tighter payment policies, districts can save money through improved inventory control and distribution. The Wichita, Kan., public schools avoid tying up excess funds in warehouse stock by keeping close tabs on the quantities of materials in storage. The district would like to have tighter control over its rental textbook supply, a district spokesperson says, but a more sophisticated data processing system would be necessary because of the variety of items involved. Wichita does save money on texts by signing five-year contracts with publishers, when possible, so that costs of the individual books do not increase each year. Supply costs are cut internally by encouraging cooperative use of equipment by different departments, like joint use of photography and darkroom equipment by art, journalism and industrial arts teachers.

The cost of "excessive storage" must be balanced against potential price increases when determining inventory levels. The Clear Lake, S.D., school district realized substantial savings by buying a three-year supply of paper when prices of that commodity began to rise sharply.

The Cincinnati public school district has streamlined its system and trimmed more than $4,500 a year from its purchasing budget through the use of a snap-out form for ordering books, filmstrips and other classroom materials. The form makes five copies at a time so the information filled in by the teacher can be used by the purchasing agent to get a quote from the supplier. One page is part of the purchase order that goes out. Charles W. Carroll, coordinator of purchasing and control, reports that the form cuts the time needed to verify prices by 30 days.

Districts should also explore sources of free or lower cost materials, says Arthur Sullivan, associate

superintendent of the Worcester, Mass., public schools. Bargains can be found in city, state and federal government surplus, equipment auctions and through discount jobbers. Trade schools and correctional institutions may also manufacture a needed item. Whenever possible, Sullivan adds, equipment should be bought at a "general" store, rather than a specialty store. For example, simple science equipment such as batteries, balloons and electrical supplies can be purchased at lower costs locally than through science equipment houses. Gifts from parent groups and donations from local industry are other possible sources of supply.

Although other economy measures are worthwhile, the big savings in school purchasing are achievable through volume buying. For large districts, those economies can be realized through centralized purchasing and warehousing. For small and medium-sized districts, cooperative arrangements with other schools and local governmental entities are often profitable.

Cooperative Purchasing

Cooperative purchasing is not a sure saver. Each school district must review its organizational structure and local market conditions to determine whether quantity discounts will outweigh the disadvantages inherent with the loss of autonomy. A study of cooperative purchasing arrangements among New York school districts by Marion Pasnik found that most co-ops included districts with enrollments of between 2,000 and 5,000 pupils. That size range tends to be the most successful for co-ops. In a majority of cases, the items purchased jointly were those used in large volume and the member districts paid their full share of joint costs. The result was generally lower prices and less time spent by administrators in detailed clerical work.

Regional educational service districts, which often are based on cooperative working relationships, can offer a convenient structure for organizing cooperative purchasing. The King County (Wash.) Directors Assn., composed of the 21 school systems in the Washington Education Service District No. 110, had volume sales of $7.3 million in 1975. According to the service district, co-op members saved 15% on overall purchases for the 1975-76 school year.

Grain Valley, Mo., Supt. Marvin Headley said his co-op of suburban Kansas City school districts has confined its purchases to paper, light bulbs, custodial supplies, physical education equipment and glazing. While the Kansas City co-op concentrates on supplies, an Illinois venture steers clear of them. The Township High School District in Palatine, Ill., reports that cooperative purchasing saved money on *equipment* purchases, but did not work for *supplies*, such as milk. And, the Hutchinson, Kan., public schools, which purchase cooperatively with both the City of Hutchinson and the South Central Library Assn., said they have gained the greatest savings in the purchase of library books. By combining its volume with the library association, prices were reduced 10% over previous orders.

One of the most ambitious co-op ventures, organized through the Metropolitan Washington Council of Governments (COG), involves 24 school districts, cities, counties and townships in the Washington, D.C., area. According to one report, the co-op closed a $500,000 furniture deal with a manufacturer soon after the venture was established in 1971. The combined energy needs of the jurisdictions is 50 million gallons of fuel oil per year — a volume which makes large discounts possible.

Besides the obvious price advantages of co-ops, the Washington group has discovered that closer cooperation pays added dividends in the form of valuable exchanges of information. The purchasing agents meet monthly, rotating among various member's facilities to get a feel for the way the other agents work. The co-op also compiled a regional phone directory of purchasing executives to facilitate exchanges of technical data and information on reliable suppliers.

The advantages of price discounts and closer working relationships that can be gained through a co-op must be weighed against the logistical and administrative obstacles that can stand in the way of smooth working relationships. One initial problem is the varying expiration dates of vendor contracts among member districts. Certain members may have to be phased into fuel or other long-term contracts as their current contracts expire. In the COG co-op, some members wanted the fuel oil delivered while others wanted to handle the deliveries themselves. As an example of the magnitude of the problem, a Bergen, N.J., co-op worked for six years to develop contracts for just 14 items. The wait was apparently worth it. Some Bergen co-op members have saved 35% to 40% on their fuel oil bills.

Other disadvantages to co-op purchasing, as described by *Economies in Education* are:

- By agreeing on common brands and grades of items to achieve high costs, districts must often change brands and upset long-established vendor relationships.
- Only one quality level is established for each item.
- Small local vendors tend to be eliminated.
- Personal attention to member districts and service from vendor salesmen is diminished.
- Users have less influence on purchasing decisions.

"Depending on the systems established and the warehouse arrangements," the study continued, "the cooperative method may also result in storage problems, delayed deliveries for some districts, lags in forwarding purchase orders to vendors and delays in paying invoices, which should not occur in a well-planned system."

Factors to be considered when deciding whether to purchase cooperatively include the sizes of prospective member districts, geographical dispersion, annual purchasing volume and common interests. Size is the most important factor, because if a district's volume is large enough by itself to qualify for quantity discounts, little is gained by cooperative purchasing. Rockford, Ill., public schools tried cooperative purchasing but discovered, since it is the largest governmental body in its county, that a central purchasing department was preferable. The district noted that the purchasing practices of the various governmental entities in Winnebago County were regulated by differing laws and codes, which made cooperative purchasing difficult.

The district with a centralized purchasing department will be more efficient if it uses planned purchasing cycles. According to the *Economies in Education* study, planned cycles equalize the purchasing administrative workload more evenly through the year and can avoid peak load problems in the receipt of merchandise. Vendors can anticipate orders, which may lead to more favorable prices, and they can schedule deliveries in advance, which helps avoid shipping delays and stock shortages. The study describes the planned cycle process as follows:

Establishing the Cooperative

The first step is to select a person to chair the group who is "a real mover and a white-gloved diplomat." Diplomacy is required to smooth over "ruffled egos and petty jealousies" at meetings, while determination is needed to urge individual members along behind the scenes. The top technical priority is to determine if co-op arrangements are legal. Each jurisdiction must be allowed to purchase under a contract negotiated by another jurisdiction and each entity must be legally allowed to administer co-op contracts. If either is a problem, model legislation should be developed and given to a person in power in each jurisdiction, along with an explanation of the potential budgetary savings of co-op purchasing.

The districts should then determine what commodity will be purchased first and establish a commodity procurement committee. The first commodity should have wide application to all jurisdictions, such as furniture. The committee should analyze the needs and current contract obligations of its members and then study the marketing system to determine local suppliers' abilities to meet co-op contracts. Manufacturer's representatives should be willing to assist the committee with this function.

At this point, the committee develops a contract, which is submitted to all members for approval. Once approved, bids are let and the co-op is in business.

"A Purchasing Co-op: Help for Hard-pressed Budgets," *School Management*, April 1976.

- For each category of items to be bought, dates are established for submission of requisitions, advertising for bids, award of contracts and receipt of shipments from vendors.
- Determination is made of items and quantities to be stocked, based on analysis of relative costs of warehouse storage, compared with direct shipment by vendors to participating schools.
- Item usage rates are analyzed and needs projected for the coming year. Stock levels, reorder points and economical order quantities are determined.
- Purchasing policies are defined, approved by the board of education and set forth in a written purchasing manual.

Centralized Receiving And Warehousing

Use of a centralized warehouse can lower purchase prices because it reduces the number of deliveries that must be made by vendors. The centralized receiving function also makes it easier for the purchasing agent to ensure that the proper specifications and quantities of items are delivered, that deliveries and payments are prompt and that proper control of the inventory is maintained. The volume of merchandise purchased by a district might not be adequate to offset the expense of additional space and warehouse employes, however, so a district should carefully analyze its needs before embarking on a warehousing program. Among the factors to be considered, in addition to the volume purchased, are the availability of storage space within individual schools, geographical size of the district, the extent to which annual contracts are used and the delivery and pricing terms negotiated with vendors.

The district which stores stock centrally should concentrate on lower-cost supplies used in large volume. The Dade County, Fla., school district, which has an unusually advanced school management program, stocks items which range in price from 12 cents to $32 in the following categories: general instructional, industrial arts, homemaking, physical education, first aid and custodial.

Items which cost more than $32 are not stocked but are listed in a catalogue of products that have been approved by the district. The catalogue lists 44 categories of nonstocked materials, some containing as many as 285 items. These are mostly costly items, such as office machines, laboratory apparatus, home economics and industrial arts equipment. Some inexpensive items, costing as little as 15¢, are also listed if they are needed too infrequently to justify storing in the warehouse.

Systems Contracting

One innovative purchasing technique developed by industry that can be used by school districts is called systems contracting. As described in *Economies in Education*, the approach calls for negotiating annual contracts with selected vendors who agree to maintain needed stock levels in their own warehouses. The system works best for high-volume, consummable supplies and lower-cost equipment items. After the contracts are signed, requisitioners in each building or department are empowered to order directly from the vendor. This frees the purchasing department from the day-to-day requisitioning and ordering of routine items, which lessens paperwork and may permit a reduction in the amount of clerical staff needed. The streamlined ordering process also frees the purchasing agent's time to spend on more expensive purchases, like textbooks and capital equipment. Items that are shipped directly to schools also reduce warehousing costs.

Systems contracting is different from the traditional, decentralized purchasing method because contracts are negotiated districtwide on the basis of careful analysis of product usage rates. When one considers the total cost of school purchasing – including executive and clerical salaries, warehouse expense and the actual price of commodities – the savings from systems contracting can be substantial. The National Assn. of Purchasing Management estimates that industrial companies using systems contracting are saving more than 20% on the costs of their total purchasing operation. *Economies in Education* estimates that savings to school districts will range from 15% to 20% – less than industry because school accounting does not consider the cost of capital to finance inventories as an expense item. Although the savings are less than in industry – 15% of an entire department's budget is still a substantial sum – these are funds which could be available to save a financially strapped educational program.

Chapter 6.

Transportation: More Miles To The Dollar

Some 55% of the nation's school children, K-12, travel to and from school by bus each day. In a year, the buses travel more than 4 billion miles and consume some 900 million gallons of gasoline. The miles and the gallons represent only part of the story. To the dollars budgeted for fuel, one must add the purchase price or leasing costs of each bus and the salaries for drivers and for maintenance employes who clean, refuel and repair the buses. Because transportation of pupils requires large outlays of capital and operating funds, the transportation budget also offers opportunities for large economies. As with all other departments, the key to cutting costs lies in increasing efficiency. And in the bus department, the most direct path to efficiency is through improved scheduling and routing.

Bus Routes

The optimum bus route makes a minimum number of stops and transports a maximum number of students while traveling the least possible distance. Efficient scheduling not only saves fuel and wear on the vehicle; it can reduce the number of buses and drivers needed. Because many factors must be considered when designing routes, some districts have turned to computers for assistance. The Clear Lake (S.D.) Independent School District reports saving 28,000 miles per year through computerized routing. Clear Lake supplied a computer service with information about the students to be transported and furnished a map of the district that showed usable access roads and locations of students. The computer trimmed the number of routes served by the district from 15 to 13.

The Horseheads, N.Y., school system used a computer program with similar results. Using a technique known as "network analysis," the program determined the most efficient routes and schedules based on street and highway configurations, pick-up locations, numbers of students to be transported and other factors. In its first year of use, the district reduced the number of buses needed from 90 to 76, with a proportional decrease in the number of drivers. Operating costs were reduced 12% for a savings of $60,000.

Efficient bus usage can also be achieved by hiring a professional transportation manager. The Rockford, Ill., public schools saved "many times over the salary of its new transportation director in 1975-76," writes Jan Eckert, school and community relations director for the district. The director worked with several bus companies to reroute and reschedule the vehicles for maximum efficiency.

Improved communications can heighten bus efficiency as well. The Denver, Colo., public schools have installed two-way radios in each bus and maintains a tow truck and two service vehicles capable of making on-the-road repairs. Radio contact helps school officials keep drivers abreast of traffic and weather conditions, and the drivers can quickly and easily notify the main office in case of a breakdown.

Transportation Dir. Gerald Elledge says drivers are instructed to call in if they suspect the bus has a brake problem. A relief bus is shuttled to the driver and the defective bus is towed back to the service area for maintenance. Elledge says it's difficult to put a dollar savings on the brake policy because he does not know how many accidents have been avoided. However, he says, that in-house towing is cheaper than commercial rates and that the "immediacy of service" is invaluable. Before Denver instituted its own tow service, school bus drivers sometimes had to wait up to two hours for a commercial tow truck.

Denver has also saved money by purchasing a bus washer that recycles the wash water through charcoal. About 500 vehicles a week are washed and the water is changed once a month. The ecological bus washer saves money as well as

avoiding a strain on the overtaxed sewage treatment system in the Denver metropolitan area. Elledge points out that sewage bills are based on water usage and that it takes about 55 gallons of water to wash a bus.

Denver has an extensive bus maintenance program to lengthen the usable life of the vehicle. The district has its own brake and body shop. It also has a policy of having a fully trained mechanic as well as a serviceman on hand when vehicles are greased, because a thorough check can be made while the bus is elevated on the rack. The experienced mechanic can find trouble spots and correct them before they cause serious damage, Elledge explains.

Preventive maintenance extends to the drivers themselves, who are required to make an extensive pretrip inspection every day. Elledge says lug nuts on bus wheels are tightened every day and that individual maintenance records are kept on each vehicle. "We use our buses 10 or more years," he says. "Some have been in use for 15 years. We think our maintenance program pays off."

When new drivers join the district, they are issued a detailed handbook that outlines policies for passenger supervision, accident reports, traffic safety and care of the bus.

Bus Ownership

The expense of owning, storing and maintaining a fleet of school buses should be weighed against the potential advantages of contracting for service with a professional bus company. The *Economies in Education* study (see page 20) concluded there was no single answer for all schools on the ownership question. The relative costs and merits of ownership, the study said, are dependent on district size and local conditions. It reported two instances, however, which favored ownership over contractual arrangements.

The Dade County, Fla., school system concluded after careful study that contracted services would be substantially more costly than ownership. While Dade County is a large, urban district, similar conclusions were reached by a statewide study that included small and large, urban and rural districts. The Massachusetts Advisory Council on Education estimated that statewide costs could be reduced about 9% if all districts owned their own buses. In 1971, when the study was conducted, only 10% owned their own buses. That study also concluded that savings could be realized by extending purchase contracts from three to five years, which would reduce annual depreciation costs.

For schools that do elect to purchase buses, the possibility of joint purchases at the state level should be investigated. The West Virginia Dept. of Education, with assistance from the state department of finance and administration, began statewide purchase of school bus bodies and chassis in November 1974. The state education department reports that more than $500,000 was saved in that initial purchase of 205 buses for 34 of the county school systems. State officials estimated the savings could rise to $750,000 per sale if all 55 county school systems participated.

The method successful in West Virginia is "disastrous" in Texas, according to C.H. Evans, superintendent of Bastrop Independent School District. By law, school buses in Texas must be bought by the State Board of Control, which establishes standards and orders buses in quantity through competitive bidding. "It has been proven repeatedly that a bus unit can be purchased more cheaply by an individual school dealing with an individual dealer," Evans writes, "but the law still remains." Bastrop has a policy of replacing buses after seven years to avoid costly repairs that become more likely as a unit ages. The district has also found that oversized engines and automatic transmissions save money through increased operating efficiency.

Mooreland, Okla., public schools trade in their buses after only four years of use. Supt. Rex Enterline reports he can get a $6,000 credit towards new purchases by trading in a $12,000 bus that is only four years old. In addition to the cash value received, the younger buses yield large maintenance savings.

A user of contracted bus service, the Wichita (Kan.) Public Schools have reduced transportation costs by rebidding contracts periodically. Wichita, like many other districts, has reduced the number of buses needed by staggering school starting times to allow "double tripping" – running two full routes each morning and evening with a single bus.

When buying new buses, consideration should be given to diesel-powered vehicles, which give twice the mileage of conventional gasoline buses, according to Calvin Anderson of the Colorado Dept. of Education. Anderson says diesel buses cost $2,000 to $4,000 more to buy, but they are cheaper to operate and maintain because they do

Conservation in Non-Bus Transportation

1. Develop an information exchange of ideas on fuel conservation between districts and with industry. Coordinate transportation with other public agencies.

2. Coordinate and consolidate pick-ups, deliveries and messenger service between schools through the central office.

3. Make warehouse deliveries to schools on a very minimal basis.

4. Encourage all employes to ask themselves the following questions before undertaking a trip: Can someone else do it who is going that way? Can I deliver something for someone else? Can I do it on the way home?

5. Adopt policy for all trips by employes to meetings, conferences, conventions, etc. Limit the amount of mileage allowance.

6. Utilize conference telephone calls as substitutes for small meetings.

7. Use telephone calls instead of home visits where feasible.

8. Install two-way radios to direct operation or redirect district vehicles to reduce mileage.

9. Request that all district employes form car pools when traveling on official business.

10. Coordinate conferences out of district for sharing rides. Use a central location as place of embarkation.

11. Have district personnel who service a number of schools coordinate trips to include as many stops as possible and include other district personnel serving the same schools.

12. Utilize a vehicle coordinator to avoid duplicate trips to various schools for maintenance and delivery service.

How to Conserve Energy in School Transportation Systems, Interstate Energy Conservation Leadership, Colorado Dept. of Education, 201 E. Colfax Ave., Denver, Colo. 80203.

not use spark plugs. Anderson notes that diesel buses may require the retraining of mechanics.

In the booklet *How to Conserve Energy in School Transportation Systems*, Anderson also suggests buying rubber suspension systems (5% to 7% increase in mileage), automatic transmission (5% to 7% mileage increase) and radial tires. Solid state ignitions give a stronger, steadier spark and plugs do not have to be changed as often. He also recommends buying smaller capacity buses where practical. Lower rear-end axle ratios give you more power without more speed for more efficient starts, he adds.

Energy Conservation

The oil embargo, which triggered higher prices and fuel shortages, has made all school districts conservation-conscious. Districts across the nation are finding that small changes in the transportation routine, such as preventive maintenance checks and better driver training, can have substantial payoffs because any such policy changes are multiplied by the number of drivers and buses the district uses.

Preservice and inservice training for school bus drivers can be a good investment from the standpoint of both increased fuel economy and reduced wear on the buses. The costs of such training can be offered through a regional service agency or board of cooperative services. The Vancouver (Wash.) Educational Service District No. 112 offers areawide bus driver training courses and has developed standardized bus specifications and traffic safety regulations for schools in its service area.

The Colorado Dept. of Education, in *Energy Conservation in School Transportation Systems*, suggests training new drivers on existing runs when the bus is "deadheading" back to the storage facility. Bus engines should be warmed for no longer than two minutes initially and three minutes prior to starting routes. Drivers should dress warmly rather than run buses at full idle to heat them. Because of the shortened warm-up, the bus should be driven slowly the first few miles.

The booklet also recommends incentive programs to reduce fuel consumption and joint workshops with drivers and maintenance personnel to improve operations. Courtesy stops, full throttle driving and high speeds should be avoided. If the driver works a split shift and the route ends near his home, the driver should be allowed to drive the bus home during the mid-day break, to avoid extra trips to and from the terminal.

Transportation Policies

Schools can reduce the number of students to be transported by establishing minimum distances for bus service. Students who live within the minimum are expected to walk or make their own transportation arrangements.

The minimums vary according to age of children served – such as one-half mile for elementary schools, 1.5 miles for middle or junior high students and 2 to 2.5 miles for senior high students. Exceptions are granted for special circumstances – i.e., elementary students who are separated from their school by a major highway. For students who live beyond the minimum distance, centralized pick-up points can be established to reduce the number of necessary stops.

For longer runs to remote areas, one bus can be used to transport children of all ages to a central point in town where the regular bus can pick them up. The use of intercoms on buses can reduce the need to make stops to control student behavior. A policy that allows school staff members to ride the bus helps fill buses while reducing the number of cars on the road.

A Colorado Dept. of Education survey found that 7% to 10% of the fuel used for transporting pupils in 1972-73 was consumed on field trips. The department suggests limiting field trips to those involving full bus loads. Minimum and maximum distances for athletic events and field trips can be established. The Garden City (Minn.) Independent School District has succeeded in lowering costs by charging students a small fee to ride the bus to athletic events.

Chapter 7.

Food Service: Taking the Bite Out of the Lunch Program

School districts are caught in the middle on school lunch programs. The costs of food and labor keep going up, but pressure from the community keeps the lid on lunch prices. The squeeze is tighter for high school lunch programs because students demand wider choices and eat more food for the same, relatively low meal price. Also, substantial numbers of them are likely to eat elsewhere, causing further inefficiencies in the food service program.

Economical food prices are more likely for the school that schedules its purchases to coincide with growing seasons and with manufacturer's surplus storage. One school district researches past bids to determine whether spring, summer or fall is the best season to purchase a given crop. Then, during the year, price quotations for meat and fresh produce are obtained twice a month by telephone and bids are awarded in the same manner. The relative success of various crops during a growing season also influences which fruits and vegetables are purchased.

As with other areas of the budget, economies of scale are possible in the food service operation by buying in bulk through cooperative purchasing. School districts in southeastern Ohio saved 25% on food costs during 1975-76 through volume purchases coordinated through the Regional Education Service Agency. The agency purchases food through the Ohio U. Food Service, which is capable of handling 100,000 cases of dry food and 6 million pounds of frozen food at a time. Savings for the 16 participating schools totaled $200,000 during the first year of the co-op. As a result, 30 schools are now participating.

Centralized Processing

An abundance of free, surplus food is available to schools from the U.S. Dept. of Agriculture, through the National School Lunch Program. While many schools take advantage of the free food, several New York school districts have extended the savings further by using the donated food to gain discounts on processed food. The program is made even more effective because contracts are negotiated at the state level, which minimizes paperwork at the district level and makes the discounts larger because of the volume of food processed.

Ernest H. Berger, chief of the New York Bureau of Donated Foods, explained that the processing contracts were first negotiated to take care of excess food that the districts were not able to use. Dried milk was backing up in the warehouses, so Berger approached a mozzarella cheese manufacturer and offered him the dried milk in exchange for a discount on the purchase price of the cheese. The manufacturer agreed to sell the cheese for 59¢ a pound, which was a considerable discount from the going rate of $1.25 to $1.30 a pound. Berger says an ice cream manufacturer gives similar discounts for the use of the powdered milk.

The savings were so significant that Berger began to explore the possibilities with foods – like ground beef – that schools had no difficulty processing themselves. The result was an agreement with a processor to make the ground beef into 2.75 oz. hamburger patties for 9¢ a pound. Even with free meat, Berger figures no school's labor costs could match the savings available through the processor.

The contracts are not limited to New York processors. A Chicago firm processes precooked meatballs, which are shipped to New York on railroad cars already under contract to the state. What do these savings mean to an individual district? Berger says the food service director for the Yonkers, N.Y., school district took over a program that was $300,000 in the red in 1974-75 and, by taking advantage of every commodity the state offered, was able to conclude the 1975-76 school year more than $33,000 in the black.

Berger says large savings are possible in every state because the USDA foods are all distributed at the state level. It is to the district's advantage to buy into regionalized processing at the state level because the local food service director can merely sign an addendum to the state contract. The district that negotiates its own processing contract will not only have a lower discount because of lower volumes, he said, but the contract will have to go through the local board of education, which can mean costly delays. (For more information, write Ernest H. Berger, Chief, Bureau of Donated Foods, Office of General Services, Building 21, State Office Building Campus, Albany, N.Y. 12226.)

Centralized Kitchens

The practice of operating separate, self-sufficient kitchens in every elementary, junior high and high school is inherently inefficient and costly. Each kitchen must be equipped with the same expensive cooking and refrigeration equipment, and each operation must be staffed with cooks, dishwashers and supervisors. Such duplication can be eliminated through the use of centralized kitchens. The success of such a program, however, depends on the number of lunches to be served, the ability to prepackage a meal that is pleasing to the students and the distances to be traveled with the prepackaged lunches.

The U. of Chicago's Center for Urban Studies conducted a study of the operating and capital costs of producing packaged lunches for three kitchen sizes: one with a daily capacity of 1,000 lunches served at the site and two central kitchens with capacities of 3,000 and 5,000 lunches.

The cost per lunch at the smallest kitchen was calculated to be 53¢ – including 33¢ for food, 17¢ for labor and 3¢ for miscellaneous costs. Unit costs for the lunches in the 3,000-capacity kitchen were 47¢, with the main savings due to a 6¢ reduction in labor costs. The 5,000-capacity kitchen produced 44¢ lunches – an 18% savings compared to the smallest kitchen.

The New York school system estimates it saves 40% of its former labor costs through centralized kitchens serving packaged lunches. Based on its research, *Economies in Education* calculated that districts with sufficient volume can save up to 15% using centralized kitchens and packaged lunches. They concluded, however, that the arrangement is "most feasible" for districts of 2,500 or more students.

Contracted Services

The *Economies in Education* study notwithstanding, some districts will find it to their advantage to contract food service operations through a local firm. A competitive local contracting market, the size of the district or other characteristics may make contracting the most attractive option. The Lindbergh School District in St. Louis, Mo., has contracted its cafeteria service for two years with a food service management firm. "It has been successful in reducing costs each year," reports Supt. Noah Gray, "and shows promise of continuing."

The Benton (Ark.) High School is having success with an unusual contracting arrangement: the kitchen is now run by the McDonald's hamburger chain. As Supt. Kenneth Cook explains it, the district's six other schools were breaking even on lunches, but the high school was losing $1,000 a year on its cafeteria. Although the high school has a closed campus at lunch, only about one-third of the 1,000 students were eating the cafeteria food. The rest brought their lunches. When the student council began talking about how attendance could be increased in the cafeteria, one student suggested serving hamburgers. Cook said the district solicited bids and got two: one from McDonald's and one from a local hamburger outlet.

McDonald's was awarded the contract by offering to install all new kitchen equipment and by paying the school 10¢ for every soft drink sold. Cook says the district has been receiving $300 per month from the soft drinks, for an annual income of $2,700, rather than a deficit of $1,000.

McDonald's charges its regular prices and offers its regular menu with one exception: it is not equipped to provide milkshakes. "The kids love it," Cook says. A daily average of 700 students eat at McDonald's where before only about 350 were eating the school cafeteria food.

Interestingly, there was no opposition from parents. When the contract was first proposed to the board of education, some expressed concern that the federal milk program was being discontinued, Cook says. The milk program was continued and vending machines were installed that provide soup and sandwiches for a change of pace. "Not too many use the machines," Cook says. "I'd

get tired (of hamburgers) every day, but the kids don't seem to."

Cook says the program is not feasible for a school that has a substantial proportion of its student body in the free lunch program, where menus are strictly prescribed. Benton, an upper middle-class community with the highest per capita income in the state, has less than 5% of its high school students participating in the free lunch program. Fortunately, the junior high is next door to the high school, so it is a simple matter to deliver the subsidized meals to the high school.

Those with at least 25% of their students in the free lunch program can break even on their lunch operation, Cook notes, because of the high reimbursement from the government. Before McDonald's, the school cafeteria was charging 50¢ per meal with few reimbursements.

Although the program has been quite a success, Cook says the school and McDonald's operate on a year-to-year contract to provide flexibility for unforeseen future circumstances. "We reserve the right to cancel," he says. "Congress may pass a law that lets everyone eat free."

How to cut costs in your food service program

What to do	How it works	How you'll save	The consequences
52. Encourage all those who qualify to apply for free or reduced-price lunches *at any time during the year* that they become eligible.	You charge 30 cents per meal; your subsidy is 67 cents per meal. Unemployment goes up during the year. One hundred more students qualify, which saves you 37 cents per day per student (or $5,000 a year).	Federal subsidies are greater than charge to student. You save 20 to 30 cents per meal.	Appreciation from those affected; be sure careful documentation is prepared for exceptions to income guidelines.
53. Increase fees to faculty to cover full direct costs of lunch.	You have 300 teachers eating lunch. You no longer subsidize them at 15 cents per meal. You save $4,500.	You'll reduce your food service subsidy.	Opposition from staff organizations and support of state department lunch agency.
54. Utilize more intensive competitive bidding for food items, including those used in home ec courses.	You use more vendors to obtain competitive prices. Your costs go down, say, 5 percent.	You'll decrease your food subsidy or cost to student.	Keep control over quality and reliability of delivery.
55. Use a central kitchen and satellite meals, including sales to others (or purchase satellite meals from other public facilities).	Productivity rises from nine meals per man-hour to 20. Cost of meals is cut by a full 50 percent.	You'll reduce cost of meals to district and/or students.	Opposition from school parent groups affected by change.
56. Deliver money from the schools directly to the bank, rather than recounting it in the central office.	Your district eliminates $1,400 in the budget, and decreases risk of theft.	You'll eliminate extra part-time help to count money.	More problems when cash count differs (between school and bank).
57. Reduce supply inventory of items.	You have a $25,000 inventory. You reduce purchases by $5,000 and let the inventory sink to $10,000. You save $15,000.	A lowering of supply inventory will result in a one-time saving equal to the amount of supplies and material not purchased by your district.	Increased chances of stock-out situations and irritation of staff unless carefully managed from all angles.

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Chapter 8.

Vandalism: Cutting the Losses

Vandalism is a serious and expensive problem for schools in most large cities. In recent years, New York City taxpayers have been footing a $5 million damage bill. Boston and Chicago schools have each suffered $1 million damage. FBI statistics indicate 77% of the vandals are under the age of 18 with most in the 12 to 14 age bracket.

What can be done to curb vandalism? A good place to start is by keeping accurate records to determine the scope and nature of the vandalism occurring in the district.

Although this step may seem obvious, most districts do not keep adequate vandalism records, if a statewide survey by the New Jersey School Boards Assn. is any indication. The association was unable to form any conclusions about the financial and social impact of vandalism because school recordkeeping was inadequate.

As a result, the association developed a model Vandalism Cost Data Form that includes six types of pertinent information for each act of vandalism:

1. **Date, time and place of the act** – shows whether there's a pattern to the vandalism.

2. **Description of the damage to school property and other property** – helps districts develop the cost analysis necessary for insurance purposes or to seek restitution from the vandal.

3. **Date reported to the authorities** – aids in apprehending the vandal by giving date, time and name of the authority to whom the act was reported.

4. **Cost analysis** – includes material, labor and miscellaneous costs (transportation charges for sending students to other schools if their own cannot be used; rental charges for space or equipment while repairs are being made; increased insurance premiums due to extensive losses).

5. **Final disposition (restitution explanation)** – indicates how long the property was not available for use and tells who – insurance company or vandal – is reimbursing the district.

6. **Other comments and suggested preventive measures** – allows for the recording of immediate thoughts and suggestions that might lead to policy revisions and antivandalism programs.

More precise recordkeeping might assist in solving or minimizing the vandalism problem by eliminating property damage that is not truly vandalism and zeroing in on malicious cases and their causes. Studies by Harvard architect-sociologist John Zeisal indicate that possibly one-half of the multimillion dollar damage done in schools which is labeled vandalism is accidental, not mischievous. The causes of malicious vandalism are complex and not easily solved. But Zeisal says accidental damage can be eliminated through better design which takes into account the "informal" uses of schools.

"Property damage," says Zeisal, "is often the result of normally rough and playful people in a fragile environment." In a one-year study of Boston schools, Zeisal discovered a school that had installed a clock beneath a basketball backboard and an outdoor basketball court where the flow of play headed toward a glass wall at one end and glass doors at the other. The solution is to keep breakable objects away from natural gathering places, he says.

Similarly, graffiti is most likely to occur at entrances, so Zeisal suggests finishing entrance walls with a substance that can be easily repainted. "You can build fences that say, 'Sorry, you can't come closer,'" Zeisal says, "but fences tend to challenge people and so escalate the problem."

Much of what people call vandalism is just children using their imaginations. When children

become bored with play equipment, they start trying to do things which the equipment was not designed to accommodate. As an example, kids get bored swinging back and forth. They begin twisting the swirgs in a circle and eventually, something breaks. One solution is to use strong and imaginative wooden equipment which will withstand "creative" uses.

School Watch

For those acts of vandalism which are not innocent or accidental, some districts have had success mobilizing residents who live near schools to report suspicious acts to the schools or police. The San Antonio (Tex.) Independent School District paid for its "School Watch" program in the first seven days when two burglaries were aborted.

The district distributed 10,000 index-sized cards to neighbors living near each of the district's schools. The cards read "Help protect your schools – Vandalism wastes your tax dollars." The school security telephone numbers are listed and the brightly colored cards suggest posting near the telephone or in the telephone book.

In the first seven days, the district received nearly a dozen calls. Two calls were from neighbors of the elementary and middle schools that were burglarized. Because of the residents' actions, seven suspects were apprehended at the burglary scenes. School security chief Sam Wolf says one of the other calls resulted in preventing possible injury to youths who were climbing on top of school buildings.

Residents who call the security office are not required to give their name. The report is investigated by the district security patrol, which has 15 regular patrolmen and 70 security guards trained and hired under the federal Comprehensive Employment Training Act.

The Wichita, Kan. public schools instituted an antivandalism incentive program to reward schools that reduced annual vandalism costs below the average costs for the preceding three-year period. In the first two years of the program "there were no significant reductions in vandalism or radical changes in trends," the superintendent writes. "However, the idea generated enough interest and support in the schools that it was decided to continue the program with minor modifications in hopes that reductions can be realized through its continued use."

Anti-Vandal Precautions

As with the energy audit, a good vandal-proofing program begins with an examination of the school building for its weak points. According to the *Encyclopedia of Cost-Cutting Ideas for Schools* (see page 9), door locks should be in good condition and of a type which cannot be "slipped" by insertion of a knife blade or other object. A metal plate may need to be mounted between double doors to prevent the insertion of a wire to move the panic bar. Glass in door panels should be examined to see if they can be easily broken or removed to permit entry. Windows and doors that are concealed from view by trees or shrubs provide breakers-and-enterers with excellent points of entry. Roof hatches should be fastened securely from the inside and transom windows that provide entry directly from roofs into classrooms or offices should have safety installations to prevent such entry.

No security survey is complete without consideration of fire hazards. Examine the entire plant and grounds for combustible materials and keep fire fighting equipment in good working order. Sheds and other outbuildings are targets for breakins and arsonists, so flammables, like paint thinners, should not be stored there. Outbuilding windows should have shades or venetian blinds which can be drawn when school is not in session to prevent "casing" of equipment and supplies.

Building interiors should be surveyed to identify equipment vulnerable to burglary. Easily-carried items that are infrequently used may be made more secure by locking them in an equipment closet. Such items might include projectors, radios, transcription machines and TV sets. The booklet suggests bolting permanently located machines, such as business machines and classroom typewriters, to tables or desks. Typing classes that are located on upper floors will discourage burglars anxious to strike and make a quick escape.

Don't signal the enemy – there's no point in labeling a storeroom "audio-visual equipment" or "clerical supplies." The staff knows what the rooms are anyway, the booklet notes. Why let intruders know?

All movable equipment should be branded with an electric etching tool, which discourages its removal and assists police with the recovery. An alternative is to paint them an offbeat color. Franklin High School in Rochester, N.Y., has reduced thefts 90% by painting its audiovisual equipment a "lurid, ghastly yellow" color. Says

Principal Pincus Cohen, "It makes audiovisual items look so ugly that no one wants to steal them and the color is so identifiable that the equipment would be difficult to fence." The paint has also been applied to the school's typewriters in the form of a large yellow rectangle on the back. Cohen doesn't worry about the paint job reducing trade-in or resale value because the equipment is sent to the district's central repair shop for reconditioning. When it can no longer be repaired it is salvaged for parts.

Distribute building keys to the "absolute minimum feasible" number of persons. At the close of each school year, recall keys issued to all personnel who will be on vacation. When there is a loss or theft of keys, a stake out or close surveillance of the building may result in apprehension of the culprit. If nothing turns up in a reasonable amount of time, the locks may have to be changed. Rekeying is expensive, and should be done only after other remedies have failed.

Inventories must be current to be useful in court or in assisting police. A complete inventory should be compiled at least once a year and should bear the signature of the employe who conducted it. It is suggested that one person be responsible for these records and be prepared to testify that he/she personally read and recorded the serial numbers and other descriptions of each item.

The most valuable inventory notes the permanent location of articles and records the changes in location when an object is moved from room to room. This method provides a speedy means of accurately reporting losses in case a burglary takes place. Inaccurate inventories may result in false reporting to the police.

Because windows are "vandal's delights," replacing regular window panes with the more expensive plexiglass or polycarbonate panes. Although they cost more initially, they can more than pay for themselves after one year.

Night lighting can discourage burglars and vandals, but the lights become superfluous once the sun comes up. Install automatic time switches with the cutoff set for dawn.

School Surveillance

As the costs of vandalism and burglary escalate, more and more schools are turning to security patrols and sophisticated electronic equipment to monitor those areas most vulnearable to attack. The extent of surveillance undertaken by any district is generally influenced by the size of the district, the number and size of the buildings that need protecting and the amount of vandalism directed at the schools.

The Pennsbury (Pa.) School District in suburban Philadelphia has substantially reduced its losses by putting its custodians on a 24-hour staggered schedule. Daytime surveillance can be conducted by the students and staff by encouraging them to report acts of vandalism promptly. An effort should be made to demonstrate the costs of vandalism in terms of money required for repairs and the interruptions to the educational program caused by extensive damage.

A district with vandalism problems should hire and deploy security guards selectively. All schools do not need surveillance – just the ones that appear to be regular targets. Contact the local police department for advice before a district invests heavily in electronic devices. Generally speaking, the systems with outside alarms are not as effective because the vandal hears it and escapes. Instead, those that are monitored or wired to a police station or the home of a school district official are more effective in catching the vandals.

The Pinellas County, Fla., school district installed a system which is monitored by the district's employes. The system is so effective, school officials say, that the district no longer carries insurance for vandalism or malicious mischief.

The Washington, D.C., schools have had similar success with a noise detection system in 52 schools that is hooked into a monitored electric console at the municipal center. If a door opens, the circuit is connected and a light flashes on the console. An operator flicks on the school public address system which can pick up very subtle sounds. "If the operator hears something that sounds human, she calls the police," says the school security director. "The thing is absolutely fantastic. You can hear dogs breathing over it."

In addition to the electronic devices, school districts can monitor schools with TV cameras that telecast to police headquarters or movie cameras that record the activity or nonactivity that occurs during the night. Whatever system is installed, it's as important to publicize the existence of the antiintrusion devices as it is to have them. Half their value lies in detecting breaking and entering attempts. The other half lies in dissuading youngsters from making attempts in the first place.

Chapter 9.

Other Opportunities To Save

The preceding chapters have described cost-cutting techniques and areas of the budget where major savings can be achieved. With tight budgets and declining enrollments, no facet of the district's operation should go unchecked in the search to save dollars. This concluding chapter, therefore, is a compendium of ideas, used successfully by schools, which do not fit neatly into the other categories. They do, however, serve the same goal of cutting costs.

One easy idea that can be implemented by any school district is an employe suggestion contest. Englewood (Colo.) Public Schools saved $35,000 through such a contest. Cash bonuses of $25 to $50 were given as an incentive for ideas which together would cut 5% from the operating budget. The winning suggestions included: combining the bus routes of three area districts plus the route serving a vocational school; turning unused machinery into income by selling it through newspaper ads; and reducing heat loss by lowering the exchange of fresh air.

The Fresno, Calif., schools cut $1.3 million in costs by contracting with work management consultants who were instructed to "trim the fat." In response to their recommendations, the district established chemical standards for swimming pools to eliminate overchlorination. Previously, untrained workers had put too much chlorine in the district's six pools, which had to be backwashed frequently at overtime pay. By cutting down on the chlorine and the backwashing, the district saved $30,000. The consultants also advised establishing a repair shop for the district's 80,000 sprinkler heads. By repairing rather than replacing the defective heads, the district saved $28,000. Professional fees for the work management study totaled $275,000. Thus, the savings gained by the management study were worth nearly five times the district's investment.

Financial Management

Earning additional interest on school operating funds gained $50,000 the first year for the Elizabeth, N.J., schools. The district first consolidated four checking accounts into one and opened a savings account with the same bank. The school studied day to day withdrawals and was able to increase its earnings by such strategies as delaying the transfer of payroll money for a few days, until checks cashed by teachers over the weekend reached the bank.

Any district paying the maximum interest rate allowed by state law on one of its loans should check to see if the interest is based on a 360-day year, advises *Nation's Schools Report.* A U.S. District Court in Oregon has ruled that interest rates based on 360-day years are "usurious" because they should be based on a 365-day year.

Long-term construction bonds are a drain on school district budgets because their high cost is compounded by the interest charged over the life of the loan. A financing technique that is saving cities and school districts money, called advance refunding, involves selling new bonds at a more favorable interest rate to pay off an old loan at a higher rate. The practice is illegal in some states, but it is allowed in many states where districts could benefit. One Indiana school district saved $1.8 million on interest payments by advance refunding a $10.2 million bond issue maturing in 1990. The district could have saved $2.5 million, says William Wilkerson of Indiana U., if it had shortened the life of the issue two years and bypassed the annual savings. Proceeds from the new bond issue may be invested in government securities with the earnings held in escrow if the refunding takes place before the first "call date" on the earlier bond issue.

The Fairfax, Va., County schools saved $46,000

a year by not having district elementary schools accredited by the Southern Association of Colleges and Schools. The district saves another $11,000 by charging high school activity funds for dues paid to the Virginia High School League (which governs interscholastic competition in athletics, forensics and other areas). Fairfax teachers who take personal leave or participate in inservice programs are no longer granted a substitute. By doubling up classes and using administrators from the same building, the district saves $329,000 a year.

State laws may impede a district's cost saving efforts by mandating wasteful duplication of effort. *School Management* magazine reports that a task force of Massachusetts businessmen discovered their state required towns and cities to keep track of school accounts. Since school districts usually do their own accounting as well, duplication resulted. The task force calculated that if the law was amended to permit unifying or separating accounting functions, as much as $1 million annually could be saved through reduced personnel costs.

The task force also recommended legislation to permit districts to float bonds using the state's credit rating, which is higher than most of the individual districts. A 1% saving in interest costs could save another $1 million a year.

Telephone and Postage

Over the years a school system may grow and acquire a sophisticated telephone system that costs more than is warranted by actual need. One small school district saved several thousand dollars per month on its telephone and public address sytem as a result of a thorough study of usage and equipment. Costs were charged to individual departments to locate areas where telephone costs were out of line. The equipment review included a count of the number of phones and how often they were used, the number of multibutton telephones, the number of switchboards and whether phones had blinking lights or call buttons. The study revealed that one central switchboard could be substituted for several and much other excess equipment was eliminated. The school's data communications system was studied with regard to its compatibility with the telephone system and a less expensive time-sharing terminal system was installed.

A large district with extensive telephone needs might consider the feasibility of establishing its own telephone system. The *Chronicle of Higher Education* reports that Ohio Wesleyan U. owns and operates its own system at a savings of $47,000 a year. The U. of California at Los Angeles has saved approximately $650,000 through development of a "lease cost telephone routing device," the *Chronicle* says, that switches campus phones into less expensive "calling paths."

Substantial savings in postage can be made by the school which uses bulk rate whenever possible. Even greater savings are possible by minimizing the need to use the postal service. *Nation's Schools Report* describes a community survey conducted in Hastings-on-Hudson, N.Y., in which respondents were urged to drop off the postage paid forms at one of five village locations. About half the total respondents obliged, saving the district 18¢ per survey. The service station, liquor store, drug store, yarn shop and market that were designated as pick-up spots were glad to cooperate, the superintendent says. Some even reminded the residents to bring in the surveys.

Mistakes in metering mail can be redeemed for a credit of up to 90%. Those who enter the wrong amount, wrong date or wrong class of service on the meter should file a form 3533 at the post office. (More information is available in the *Refund Brochure,* Publication No. 5, at any post office.)

Data Processing

As with telephone equipment, some districts may be paying for more computer services than they actually need. Using this logic, the Lake Washington schools in Kirkland, Wash., saved $239,000 over two years. The district took a "hard look" at the contract and eliminated services used infrequently, like sophisticated cost and enrollment projections. The district will request and pay for such information on a one-time basis when necessary. The district also negotiated a two-year, rather than a one-year, contract and moved its terminal from high-rent to low-rent space in district offices.

Washington State Education Service Districts 109 and 112 combined their data processing centers to provide fiscal assistance to five local school districts too small to afford their own business managers. "The cooperative is working excellently," the service agencies report, "bringing large savings to districts that vitally need expert fiscal help in these times of complex financing and

state reporting conditions."

The Arizona Dept. of Education will save $108,000 a year on personnel costs because of the purchase of an optical mark reader. The reader can process 370,000 forms a year, permitting a reduction in keypunching staff from 12 to 3. It costs $13,500 a year to operate, including amortization of its $85,000 purchase price. The nine keypunch positions cost $120,000 a year, resulting in a net savings of $108,000. The plan is feasible on the school district level, too, a spokesman said, and many districts are following the state's example.

The College Place (Wash.) School District gets more mileage out of its computer dollar by using the reverse side of printout paper for routine classroom arithmetic and scratch paper work. The long sheets could lend themselves to mural work in art classes, too.

Insurance

In an era of increasing student rights and a growing awareness among teachers that they can take their employers to court, insurance rates are reaching crisis proportions for some school districts. Some experts recommend that schools consider forming a reinsurance pool for school systems similar to pools for life and auto insurance policies. The problem with such pools is that accountability is diluted because no one knows which school system is responsible for rising rates. Palm Beach County, Fla., schools use a system of self-insurance and workmen's compensation for liability on employes. The district paid $116,000 for self-insurance this year and about $78,000 for a year's coverage under workmen's compensation.

Several states have self-insurance plans that are open to local governmental bodies, including school districts. According to Dwight Hester of the Southern Regional School Boards Assn., North Carolina, South Carolina, Alabama and Arkansas insure property loss from natural causes (e.g., wind and fire and some cover vandalism losses). The plans are usually administered by the state education department and the legislature allocates money to start the fund. Hester is unwilling to make a blanket statement on whether districts save more by insuring through the state rather than through private companies. "State plans are an idea worth considering," he says, "but they're no panacea. Often they're oversold by educators who don't know anything about risk management." He explains that the state plans were established originally to protect the coastal states from hurricane damage at a time when no private insurance company would touch it. State insurance may be the answer in a tight insurance market, he says. If competition for insurance business is keen, districts may be better off using private companies.

Hester adds that many states reinsure a part of the loss. For example, some cover claims of up to $1 million and reinsure the rest. Although it is assumed that the state legislature will cover any deficit, he says the Alabama, South Carolina and North Carolina funds have been established many years and have never needed to be "bailed out."

Madison, Wis., employs a risk manager to operate an $800,000 fund that is open to schools for property and other liability coverage. Ron Sklansky, of the state legislative council, says that the city-offered insurance has proven less costly than private insurance for school districts. Other Wisconsin school districts can participate in a state-sponsored insurance plan.

Colorado is considering permitting public entities to pool their insurance coverage through intergovernmental agreements. Another recommended bill would set a two-year statute of limitation on civil liability for public entities. Colorado legislative researcher Lenny Arnold says state officers are already protected; a proposed new law would insure officers of other governmental entities. Civil liability laws that currently apply to the general public have statute limitations varying from one to six years.

School boards can some times reduce liability rates and forestall lawsuits through improved grievance procedures. According to *Educators School Business Report*, a Minnesota insurance company charges school districts up to 50% more on insurance premiums if they lack affirmative action programs and guidelines or procedures for employe and student rights. The firm doesn't ask to see the guidelines, the publication notes, but simply inquires whether they exist and are in writing.

Curriculum

The rising cost of paper and other costs related to publishing has sent the cost of textbooks soaring. The Lindbergh School District in St. Louis has minimized the impact by adopting new books less frequently. New texts are introduced every six to seven years rather than on a four- to five-year cycle. Another district has responded to rising costs by eliminating less popular electives, which

reduces curriculum costs by cutting down on the number of book orders to be placed and processed.

Interdisciplinary programs save costs according to the Wichita, Kan., schools. The curriculum materials for the programs are prepared by professional staff and supplies are purchased districtwide and packaged by local employes for distribution to the schools. The district also grows its own plant and animal specimens for science laboratories.

The Mooreland, Okla., schools save money by standardizing texts to use the same series over several grade levels. Supt. Rex Enterline says a committee of teachers and administrators review the five texts for each grade level that are provided free by the state and a consensus is reached on the text to use for each grade. Supplies are standardized and purchased for a year's use.

Educational programs that require consummable supplies eat into district budgets because the materials must be continually replaced. The School District of Crete (Neb.) reduced the cost of an individualized instruction program by switching to reusable materials that are covered with acetate.

Materials budgets for shop classes and vocational centers can be recharged by scheduling a construction project that can be sold for a profit. The Charleston, W. Va., school district has established a policy that utility buildings and other objects constructed in building trades classes can be sold at fair market value, which can be figured as cost plus 10% or other criteria agreeable to the school board.

Curriculum development costs can be reduced by investigating the materials available through university curriculum services, commercial publishers and curriculum clearinghouses. The *Learning Directory*, developed by the Westinghouse Learning Corp., indexes more than 200,000 items of instructional materials under 225,000 topics. The directory describes curricular and instructional materials, including course plans, textbooks, filmstrips, workbooks and teaching aid kits. Other clearinghouse services are the Curriculum Advisory Service and the International Clearinghouse on Science and Math.

School districts in Washington have lowered inservice training costs by participating in cooperative programs offered by the local Educational Service Districts (ESDs). The Seattle area agency, ESD No. 110, maintains a talent bank of more than 2,700 consultants who will speak to teachers free or at minimal cost. The talent bank schedules more than 100 workshops each year on such subjects as death education, positive discipline, personnel evaluation, special education, metrics and basic skills. ESD No. 110 annually surveys about half the 15,000 administrators and teachers served by the agency to develop a needs profile. The workshop topics are based on needs and interests expressed in the survey.

The Vancouver agency, ESD No. 112, has developed area-wide inservice training programs in conjunction with the Clark County Curriculum Directors and Clark Community College. The three agencies work together on needs surveys, program presentations and the timing of classes to guarantee maximum attendance and minimum cost per district.

Vancouver also saved on curriculum costs by seeking donations from public and private sources to provide health education and human sexuality materials to 31 school districts. Health educator Doug Goodlett raised $40,000 through visits to the March of Dimes, the Washington Traffic Safety Commission, area health districts, state health and welfare agencies and six other private and public organizations.

Athletics

Athletic programs, like class size, can be an emotional issue in the community. Particularly in small towns and rural areas, much community interest is focused upon the local football and baseball teams. Some communities have been able to trim the costs of extracurricular athletics, however, and come out of the experience unscathed. Clear Lake, S.D., a district with 640 students in grades K-12, discounted interscholastic sports at the junior high level. In its place is an intramural program which Supt. Frank C. Blaine says "will reach more students and thus be a better feeder program for the high school sports." Intramurals also save on transportation costs in this sparsely settled area.

Marian Central Catholic High School in Woodstock, Ill., trimmed costs by charging students fees for participation in extracurricular activities. The school decided to drop its baseball program on the grounds that there were ample opportunities to participate in community programs. This did cause some hard feelings, however.

The Community Unit School District, also in Woodstock, has decided to make its drama, school newspaper and extracurricular athletic programs all self-supporting. Gate receipts at athletic events will be applied to both supplies and capital outlay. The Sequim, Wash., schools use gate receipts to pay the

travel expenses for athletes and has switched to intramurals at the middle school level. But the Bismarck, N.D., schools ran into difficulty when it tried to discontinue feeding athletes on trips. The economy measure would have saved $20,000 out of a $10.8 million school budget.

The Seattle public schools were forced to cut their budget by more than $50 million after their annual budget elections were defeated two years in a row. The athletic program was cut about 30% and is now "essentially self-supporting," the district writes, through gate receipts, stadium rentals and parking fees.

The Lions Club members in Ellinwood, Kan., work the gates at school athletic events at no cost to the district. One of the more radical alternatives was implemented in South Holland, Ill. The school district has deleted *all* coaching fees from the budget and permits voluntary activities on an unpaid basis. Other money-saving possibilities are to get donations of equipment from the community, to schedule games on Thursday, Friday and Saturday to reduce the number of stadiums needed and to increase the length of time before uniforms are replaced.

The decision to install synthetic turf on three Dallas high school football fields cost "a whopping $900,000," says *Schoolhouse* newsletter, but the revenue bonds floated to finance the project will be paid off through increased gate receipts from games played on the improved fields. The fields remain in "perfect condition" in spite of 300 football games per season, says the newsletter. Also, band practice, ROTC drills, soccer, lacrosse and field hockey can take place on the field at other times of the year. The fields are used by high school, junior high and elementary students.

St. Edmund's Academy in Pittsburgh gets double duty out of its fieldhouse as a basketball court and an ice rink. With a grant from Educational Facilities Laboratories, the school hired consultants who developed a roller that unwinds a roll of green plastic "ice" over the basic fieldhouse floor. *Schoolhouse* says the floor can be used as full ice skating rink, a full basketball court or half of each.

A citizen task force can be appointed to come up with ideas to trim athletic costs. Such a committee was formed in Bloomington, Minn., and their recommendations were printed in *Nation's Schools Report:*

- Combine all high school teams for coaching wherever possible. (Teams would represent their own schools in competition.)
- Provide no overtime maintenance help on weekends and make coaches and team members responsible for maintaining locker rooms, etc.
- Maintain only two teams per sport.
- Eliminate all athletic directors in individual high schools. Transfer their responsibilities to the district office, adding two staff members there – a male coordinator and a female coordinator. Have coaches report directly to the two coordinators.
- Increase student/coach ratios in interscholastic and extramural programs.
- Reduce bus costs by having: A and B teams play at the same locations at the same time; students report directly to local schools where practice and regular games are scheduled; adult volunteers and coaches drive buses.
- Don't provide practice and warmup garments (practice jerseys, sweat shirts and pants, etc.) that aren't necessary for an athlete's safety.
- Stop giving free game passes to all district personnel. Limit passes to persons performing a required or volunteer function at individual contests.
- Eliminate equipment managers and make coaches responsible for equipment.
- Discontinue providing equipment that participants in certain sports might normally be expected to own (golf and tennis balls; ski boots, poles and skis; hockey gloves, elbow and shin pads, etc.).
- Have students pay hill or green fees and reduce the amount of ice rental time by making more use of outdoor rinks.

Districts that find their laundry bills rising should check into the cost of laundering the towels in-house. The Punahou School in Honolulu, Hawaii, now spends $20,500 a year compared to $29,000 a year for commercial laundry service. First year costs were $52,000 to buy the washers and dryers, buy a stock of towels and hire a person to do the work.

Many problems suffered by school districts today are due, either directly or indirectly, to a failure by voters to approve an election. Overcrowded schools must turn to double sessions because construction bonds are defeated; large school districts resort to drastic budget costs because their operating budgets are disapproved by a disgruntled or apathetic electorate.

The key to staying afloat financially, it would appear, is to discover the magical combination of arguments that will convince voters to descend upon the polls with a favorable vote. Magic formulas do not exist, of course, but certain characteristics, such as advance planning and continuous feedback, do recur in successful election efforts.

Educational communications consultant William J. Banach studied the school financial issues on the June, 1976, Michigan ballot and discovered a string of common characteristics that distinguished the winners from the losers. The characteristics were listed in *Educators School Business Report* as follows:

- The winners spent as much time planning their campaigns as they did implementing them. Also, most spent more time planning than communicating.
- The winners studied previous elections in their districts before planning the June campaign.
- The winners relied on face-to-face communication (block visitations and coffee get-togethers) to build support for their ballot issues and reinforce the positive attitudes held by "yes" voters.
- The winners supplemented their face-to-face communications with printed material. Rarely did printed material carry the full communication load.
- The winners took steps to identify target audiences and isolate their informational needs.
- Campaign literature in winning districts focused on children and educational programs rather than on school finances.
- Generally speaking, the boards of education in winning school districts were unanimous in their vote to place the financial issue on the ballot.
- The winners were more committed to financing education on a year-round basis than were the losers.
- The winners typically placed responsibility for the campaign in the hands of one person, a school administrator.
- In one way or another, the winners involved citizens in their campaigns.
- The winners began their campaigns by informing all voters of the ballot issue and its implications for the educational program.
- The winners went out of their way to communicate with known school supporters.
- Most winning campaigns were organized by elementary attendance areas, and the elementary principals had key communication responsibilities.

Chapter 10.

Conclusion

It is clear that all kinds of school systems are coming to terms with the shrinking dollar. Their solutions have been varied, innovative and productive. Many have yielded improved educational programs or more efficient operating procedures. Budget cuts, it would seem, do not always have to be devastating or even negative.

The key to avoiding disaster is planning: planning to predict enrollment declines several years in advance so staff can be reduced gradually through attrition; planning in terms of long-range goals so that when cuts do come, reductions can be based on predetermined priorities acceptable to board members and to the general public; and planning also entails a well-defined and ongoing public information program.

Respondents to the *Education U.S.A.* survey repeatedly stressed the importance of keeping the public "aware of potential problems before they actually become problems," in the words of the Garden City, Minn., superintendent. Advance warning from the Bismarck, N.D., superintendent takes the form of a newspaper interview spelling out his ideas "at least three months before any decision is finalized."

Communication should not be limited just to telling constituents about the problems. The community will be more receptive to the tales of woe if they have been informed of the good news as well. A lack of information suggests secretiveness, which arouses suspicion in the minds of the press and public. The Valley View schools in Romeoville, Ill., have developed an extensive communication network to keep parents and other taxpayers informed. "Dial-into-Education" is a phone number with a prerecorded message that gives callers information about things that are happening in the district. A companion number, the "Feed-Back Service-Line" lets callers tape a 30-second message listing a question or concern. The caller is invited to leave his or her name and number if a reply is desired. The superintendent holds monthly "coffee klatches" and reports weekly to the public and staff via cable television. A district communication council also offers opportunities for community feedback to the schools.

Another popular vehicle for communication is the district newsletter. The Fairfax, Va., schools devoted a newsletter to an explanation of pending budget cuts and tentative reductions that might become necessary if the revenue picture worsened. The board president said "we believe being open is the best way to get the public to stay with you during troubled financial times." She apparently was right. Shortly after the newsletter was published, voters approved a $15 million bond issue for special education buildings by a 3 to 1 margin, although two previous Fairfax bond issues had been defeated. The two-page newsletter was divided into four parts: "bringing you up to date," which described the budget process; "what has been cut," which explained the 13 budget cuts planned for 1976-77; "revenue problems," which discussed the effects of inflation and changes in federal and state funding; and "if more cuts are needed," which listed 17 more cuts that would be necessary if county supervisors did not approve the board's funding request.

Closing Schools

The admonitions to plan ahead and keep the public informed are nowhere more important than in the context of a school closing. The neighborhood school is an emotional issue for parents, a job security issue for teachers and an investment issue with taxpaying property owners. It is a traumatic experience for community members who were raised thinking growth is good. Closing a neighborhood school is, for most, a sign of decline and decay.

Two districts responding to the *Education U.S.A.* survey told of trying to close schools

without proper planning. In both cases, the plans back-fired – with one small town threatening to take the rural school board to court. In contrast, the Crete, Neb., school district closed three rural elementary schools with positive results. First, a newsletter described the extent of the costs involved in operating the three schools. Then, two public meetings – heavily advertised – were scheduled to explain the closings. All three closures were justified primarily on the basis of costs. The district plans to sell the schools.

School closings are less threatening to a community when parents and members of the public can have a hand in the decision-making process. By making them privy to the problems, districts can gain allies instead of foes. In the study *Fewer Pupils/Surplus Space*, the Educational Facilities Laboratories recommends naming a citizen-staff task force to study enrollment projections, visit all schools and recommend the schools to be closed. Because of the potentially explosive nature of the assignment, the important ingredient is time – time to study, to assimilate and to accept the facts.

If the task forces are composed solely of district staff or outside consultants, citizens should be involved "at the very least" as members of a reaction panel, the study says. That way, community concerns and recommendations can be expressed before a final decision is made. Some administrators recommend that information about closure be part of a two-step process. General information about declining enrollments should be released first. Then, after these have been digested, the district can begin to talk about the implications such declines have for closing specific schools.

Once the task force has determined that a school must be closed, the same or a separate task force should begin determining criteria and priorities for closing schools. The task force can then recommend which schools should be closed and can calculate the savings to be gained. Another task force should be looking into subsequent uses for the schools, the study advises, including the availability of tenants and any legal constraints that could limit the district's options on lease or sale of the building.

After the task forces have reported, the school board should schedule a public hearing "to give opponents a chance to be heard and to ventilate their opposition or hostility." The hearing is also an opportunity for the district to bring together proponents of closure both from the schools and from the community. The task force should report its findings in the context of overall benefits to the district. Supportive statements from the principals of both the sending and receiving schools are also helpful. "Outside experts can help deflect some of the flack," the study adds. Local real estate people can accent the positive – the real estate taxes may be lowered. Administrators should be candid. After the public hearing, the study concludes, "decisive board action and firm, immediate, administrative follow-through are the final steps necessary to successful closings."

In the orchestrated process of closing a school, the feelings and attitudes of the students should not be overlooked. (For more complete information on steps to successful school closings, see the Education U.S.A. Special Report *Declining Enrollment.*)

A "Goin' Out in Style Campaign" turned the closing of Montgomery Hills Junior High School in Silver Spring, Md., from "a calamity into a celebration." A special planning committee composed of students, staff and parents redesigned the school mascot, a Mohawk, making him older and wearing a hobo pack on his back. Special "Goin' Out in Style" buttons were produced and distributed and a song of the same name was written and performed at a kick-off assembly. Each event during the 1975-76 school year – including the last Homecoming and the last Christmas dance – was consciously celebrated as a tribute to the life of the school and its former graduates. Several special events were also planned, including an Alumni Night and historical issues of the school newspaper.

Morale of students and staff remained high and student participation in extracurricular activities increased significantly over previous years. As an added dividend, vandalism was reduced. Perhaps most important, however, students left the school in June "not in mourning, but with a good feeling about moving on to a new school."

Thus, a district's attitude and approach to a school closing or a budget cut sometimes can affect whether the experience is good or bad. Obviously, some sudden and unexpected revenue losses can create havoc in even the best-administered districts. For the most part, however, the budget squeezes suffered by school systems are being caused by the fairly predictable forces of inflation and declining enrollment. Using foresight and a little imagination, school systems across the country are learning to live with the budget battle and at the same time guarantee a sound education for their students.